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MILITARY AFFAIRS

No. 1826

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23 December 1983

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MILITARY-POLITICAL ISSUES

'REPORT AND ELECTION CAMPAIGN' DISCUSSED

PM152136 Moscow KRASNAYA ZVEZDA in Russian 15 Nov 83 Second Edition p 1

[Editorial: "Party Conferences"]

[Text] The report and election campaign in army and navy party organs is entering a new stage. The completion of primary party organization meetings is being followed by party conferences in formations, military education establishments and institutions, and they in turn will be followed by conferences in military districts, groups of forces and fleets.

At the report and election party meetings that are taking place the communists are unanimously approving the points and conclusions contained in the statement by Yu. V. Andropov, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium, and determining practical measures aimed at further raising the vigilance and combat readiness of troops and fleet forces.

The progress of the report and election campaign shows that party organizations have accumulated considerable experience in party political work on the implementation of the decisions of the 26th Party Congress and subsequent CPSU Central Committee plenums and the recommendations of the Sixth All-Army Conference of Primary Party Organization Secretaries. It is important for the party conferences to analyze this experience comprehensively, bring to light existing shortcomings, discover reserves and find ways to further improve party political work on the mobilization of communists and all personnel to attain higher indicators in combat and political training and in mastering weapons and equipment and strengthening military discipline. Special attention must be given to those collectives which have been negligent in combat training and discipline and to those questions of the activity of political organs and party organizations which have been resolved less efficiently.

The conduct of party conferences coincides with the beginning of the new training year. Political organs must ensure that the party conferences examine specific measures aimed at the unconditional execution of the USSR defense minister's requirements for the 1984 training year and the enhancement of party influence on the quality and efficiency of the training process. In this connection it is necessary to take more fully into account suggestions and critical remarks voiced at report and election meetings aimed at further im-

proving the personnel's training and education, make use of the party aktiv's opinion during the preparation for conferences, and ensure a truly businesslike and principled discussion of topical questions of party work, which would help raise its militancy even higher.

The party conferences must carefully examine the work style of political organs and party organizations and the way they are fulfilling the 26th CPSU Congress' stipulations on the improvement of party leadership methods. The party today considers it an urgent task to raise the level of political leadership and improve the style of party organs' activity. The progress of report and election meetings shows that the problems of strengthening organization, discipline, and combat readiness, and questions which are especially topical for one collective or another are not always examined through the prism of party work. This shortcoming is also noticeable in daily life. In this connection it is necessary to comprehensively evaluate the efficiency of party work methods and their effect on raising the communists' responsibility for the state of affairs in the sector entrusted to them and on attaining high end results in combat training and socialist competition. Detailed analysis of organizational and political work in units and ships and the determination of measures to step it up comprise an important task for party conferences.

Much attention is being given during the report and election meetings to questions of improving ideological and political education work. The decisions of the CPSU Central Committee June (1983) plenum now provide the foundation for the ideological activity of political organs and party organizations. Some of them, however, do not show the required persistence in enriching the content, form and methods of political education work, intensifying its assertiveness, and enhancing its influence on practical work by servicemen. The conferences must specifically analyze what has been done in this respect and provide a principled assessment of the level of party leadership in ideological work and of the effectiveness of the personnel's political instruction and the educational measures that are being implemented.

The conferences must examine with great urgency and exactingness questions of strengthening organization and party, state and military discipline and define measures to enhance party influence on the resolution of the tasks set by the CPSU Central Committee and the USSR minister of defense in this sphere. The decisive condition here consists of consistent and persistent work by all communists and their implacability toward any deviations from Soviet laws and military regulations. Those who tolerate breaches of military order and of moral and ethical standards must be held strictly accountable through party channels.

When defining tasks for the further improvement of internal party work, the conferences must denote attention to in-depth analysis of the activity of primary party organizations as the driving force and political nucleus of military and labor collectives, to the process of ensuring the vanguard role of communists, to the stricter monitoring and verification of the execution of party decisions, to enhancing party influence on the selection, placing, training and education of cadres, and to determining measures to step up activeness in the work of Komsomol organizations.

The party conferences will conduct separate discussions on the keynote speeches and reports by the party commissions. It is important for their activity to be analyzed from the position of the increased significance attached to the purity of party ranks and the strict adherence by all communists to the requirements of the party rules. Broad discussion of the practical work of party commissions must help to further step up their participation in the work of political organs and party organizations to enhance the responsibility and discipline of communists.

The successful conduct of party conferences largely depends on the leadership of their preparation and conduct by senior political organs, primarily the political directorates of military districts, groups of forces and fleets. They must ensure strict adherence to internal party democracy, generalize positive experience, and take measures to implement critical remarks and suggestions by communists.

The conduct of party conferences to a high standard and in a spirit of party criticism and self-criticism and creative quest for reserves will help to further improve party political work and enhance its influence on all aspects of the life and military training of troops and fleet forces.

CSO: 1801/122

ARMED FORCES

COMBINED NAVAL INFANTRY AND MOTORIZED RIFLE TRAINING EXERCISE

Moscow KRASNAYA ZVEZDA in Russian 5 Oct 83 p 1

[Article by Captain 2d Rank V. Shirokov and Lieutenant Colonel B. Karpov:
"Battle on the Beachhead"]

[Text] The training, about which we want to talk, was not too ordinary. In it naval infantrymen of the twice-decorated Red Banner Baltic Fleet and motorriflemen of the Red Banner Pre-Baltic Military District opposed each other. Naval landing forces and motorriflemen—long-time friends. Serving in one kray, in the neighborhood, they constantly maintained close and dependable ties, regularly exchange experience, meeting at military cooperation evenings. Not infrequently their meetings are on the fields of training battles. At one time the Baltic naval infantrymen and the Pre-Baltic troops participated together in the exercise, "Zapad-81". These comrades in arms practice regularly the conduct of various joint training measures today as well. On one of these our correspondents decided to visit. Captain 2d Rank V. Shirikov set out on a ship, where the loading of the naval landing force was already occurring. Lieutenant Colonel B. Karpov left for the sea coast where, after completing a night march, the motorriflemen occupying the defense were conducting engineer work.

In the Assault Landing

The mooring lines were cast off. The landing craft, one after the other, pulled away from the mooring wall, left the base, and set course for the debarkation area. With them the hovercraft followed.

In the cabin, where the landing force commander Guards Major V. Tugov was quartered, it was crowded. The officers gathered here again and again made the situation more precise, and played out on the map various attack variants.

"Uninskiy!" Tugov suddenly turned to one of the officers. "Look, a steep bank, a narrow strip of beach. The place for the landing is not very suitable. But, to make up for it, near at hand is a crossroad of asphalt roads. We need only to come out here and we will have operating space."

The battalion commander not by accident addressed all this just to Guards Captain P. Uninskiy. He, together with his company, will be in the first

wave of the assault landing. Only he was faced with it, as such a course of action would be approved, to gain that very strip of beach as a toe-hold, and hold out on it until the approach of the main force, protecting their landing. The only question is, is it possible to hold out there? Uninskiy for some time appraisingly looked at his map, and then pronounced firmly, "We will hold out!"

In the Defense

After a sleepless night, in the course of which the motorriflemen accomplished the march, fatigue made itself known. And although the basic amount of engineer work had been completed with the help of the attached excavating equipment, no small amount had to be worked with shovels. In the trenches and foxholes, the officers worked equally with the other ranks. By evening they had prepared not only primary and reserve positions, but also several dummy ones.

The battalion commander, Guards Major V. Panov, allowed the personnel to rest, and he himself decided to check the preparation, for repelling the assault landing, immediately in each of the companies. Affairs in the company commanded by Guards Captain R. Davtyan particularly disturbed him. This officer comparatively recently was assigned to the position and, as it proved out, he allowed a series of mistakes. A unit of fire means was deployed unsatisfactorily--they had limited sectors of fire. Urgent corrections had to be made.

Until midnight the officers of the battalion worked strenuously; they improved the fire system and organization of cooperation. And at midnight...

In the Assault Landing

At midnight the craft with the assault landing party was already approaching the debarkation area. The artillery preparation started. Aviation, supporting the assault landing party, delivered strike after strike on the shore.

The shore was illuminated with the flashes of answering shots. It felt like the opposing side met the assault landing fully armed. Why, this means only one thing. From every naval infantryman it was now demanded to display the maximum combat pressure, striving, and daring. The nimble hovercraft rushed to the shore. The minutes were counted--and they literally took off in a rather steep angle, raising into the air, sand and seaweed. Instantly the landing party leaped out of them, conducting fire on the run.

In the Defense

In the first minutes of the nighttime battle, it was already clear that the foresight of Guards Major Panov, ordering the equipping of dummy positions, proved himself. A substantial part of the firepower was brought down on the shore, falling on them.

And still the naval infantrymen were able to overrun the first line of defenders. We will speak openly, it was difficult to suppose that for the landing, they chose precisely that seemingly not very suitable place.

Yes, they gave the landing force a mission. Guards Major Panov leaned over the map. Suddenly a thought entered his head: what if they tried to bring the "enemy" into a "fire pocket"? Everything was favorable for it. There was only one of the companies—the company, which Guards Captain Petukhov commanded, had to change positions quickly.

The battalion commander pressed the key of the communications device and issued the order for it.

In the Assault Landing

The amphibious equipment entered the dark water from the ramps of the landing craft. Guards Major Tugov uneasily closely observed the shore, there from where the sound of weapons and the furious crackle of automatic weapons bursts were heard, where fountains of fire raged.

Uninskiy's company obviously found themselves in a very difficult situation. Tugov sent a platoon, commanded by Guards Lieutenant Yu. Kobzar', to help him.

In the Defense

It already appeared that, having fallen under a cross-fire, the assault landing force would abandon the attempt to consolidate on the beachhead. But then observers reported that in the battalion's rear an exchange of fire was ringing out. Panov had to detach there a group of soldiers, headed by Guards Senior Lieutenant I. Kadtsyn. Kadtsyn's platoon was invariably the best in the battalion. And at this time the motorriflemen undertook the fulfillment of a complex and important task, knowing the business.

And still the assault landing force, conducting strikes from the flank and from the rear, punched through a breach in the defense. In a counterattack against the penetrating group of naval infantrymen, Panov committed his attached tank company, under the command of Guards Senior Lieutenant S. Shelkovskiy. The training battle on the beachhead flared up with new force. The exercise continued until sunup. Both sides displayed maximum activeness and persistence in putting into practice their tactical schemes.

The victor in the exercise battle was the military skill of the naval infantrymen and the motorriflemen. The joint training really helped both sides to become more deeply familiar with effective combat measures against each other, to work out cooperation and mutual understanding better, and to strengthen combat friendship still greater.

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CSO: 1801/36

ARMED FORCES

PROCEDURES CHANGED IN SIGNAL UNIT TO BROADEN SPECIALIZATIONS

PM171229 Moscow KRASNAYA ZVEZDA in Russian 11 Nov 83 p 1

[Dispatch by Lieutenant Colonel V. Skrizhalin: "At an Intensive Pace"]

[Text] Limited contingent of Soviet troops in Afghanistan--Captain Stanislav Nikolayevich Krupenkov had served as an engineer for several years. And throughout this time his chiefs and commanders had noted Krupenkov's aptitude as a commander alongside his indepth knowledge of the equipment entrusted to him as an officer. He knew how to unite people around him and was enterprising and demanding on his subordinates, never being satisfied with the results achieved. That is why, when a command vacancy occurred in a communications subunit, he was promoted to fill this post.

Captain Krupenkov's entry into the new post coincided with the end of the winter period of the last training year. The signalmen obtained an excellent rating for the first time. And although it was pleasant to see his own name among the best subunit commanders, Stanislav Nikolayevich appreciated that the main contribution to the success had been made by his predecessor. The officer's own word as commander still remained to be said.

Despite the smoothness of the training process the new commander knew he had to change something, particularly in the execution of the special tactics training exercises. The point was that the specific nature of work at the stations of the type in question enables one man, in effect, to ensure reliable communication under operating conditions. This fact has often been made use of by station commanders in monitoring exercises during the final checks. And many thought that was how it should be: A quite large team services and deploys the station while the station chief himself "makes" the communication. Correspondingly specialists had been taught the bare minimum of their military speciality. None had raised the question of the mastering of a related specialization or the improvement of skills, particularly by soldiers and sergeants.

But Captain S. Krupenkov, while still in his engineers post, had understood that the kind of approach to teams' combat readiness where there is only one highly skilled specialist is one-sided. Yes, a single specialist

officer is able to provide a high result, a positive rating. But in a real combat situation, where losses could occur, would there be anyone able to replace the station chief?

The commander's concern was backed up by all subunit's communists. Particular attention was paid to junior specialists. Officers V. Sukharev and V. Chistyakov willingly passed on their experience of working with the equipment. The subunit began to use the material training base more effectively, and the comprehensive training of specialists began to be carried out at a more intensive pace against a complex tactical background using various approaches to bringing in or putting "out of action" particular specialists. The work of rationalizers has also had a beneficial effect on increasing the quality of signalers' training.

The results have now been announced. And Captain Krupenkov is already deservedly receiving his colleagues' congratulations. The signalers have risen to the occasion and have completely fulfilled their high socialist pledges. But perhaps the subunit commander may be especially pleased by the fact that Junior Sergeant O. Gorenetskiy, Private First Class V. Shchepkin, Privates S. Nechayev and M. Yermakov, and many other servicemen have not only fully mastered their combat specialization but are also successfully able to replace a comrade and have been trained to act with independence and initiative in a complex situation.

CSO: 1801/107

ARMED FORCES

HISTORIAN ASSESSES BATTLE OF KURSK

Moscow PRAVDA in Russian 22 Aug 83 p 3

[Article by B. Solov'yev, doctor of historical sciences: "Dawn of a Great Victory: On the 40th Anniversary of the Battle of Kursk"]

[Text] The Great Patriotic War has been forever stamped upon the memory of the Soviet people. Its grandiose battles do not lose their luster with the passage of time. Possibly their significance is perceived even more clearly and sharply through the prism of the passing decades.

The most important stages on the road to victory over fascist Germany were the battles of Moscow, Stalingrad and Kursk: they were waged with the maximum effort of forces, and enormous masses of troops and equipment came into the fight. In each of these battles, the Soviet Army achieved decisive successes--it destroyed the enemy's plans, annihilated powerful groupings of his armed forces and changed the military-political situation in favor of the USSR. In the Battle of Moscow, the fascist blitzkrieg plan was wrecked. But it was still necessary to undergo many severe trials, to survive the bitterness of retreat, requiring great efforts still, in order to achieve a fundamental change in the development of the Great Patriotic War. The victory at Stalingrad started it. The Battle of Kursk and the Soviet army's break to the Dnieper were crowned by a fundamental change in the Great Patriotic War and all of World War II in favor of the anti-Hitlerite coalition.

Having suffered defeat at Stalingrad, the leaders of fascist Germany still dreamed of correcting the strategic situation. "Total mobilization" of the resources of Germany and the countries in Europe enslaved by her was carried out. In 1943, the Wehrmacht received more military equipment than in any of the previous years of the war. The lion's share assembled by "total mobilization" was directed to the Soviet-German front, which remained, as before, the main front of the fighting. These forces were concentrated on the Kursk salient.

In 1941, as long as the German-fascist troops conducted an offensive on a wide front--on the north-west, west and south-west strategic axes--and in 1942 also widely advanced--on the Stalingrad and Caucasus axes--then in the summer of 1943, the enemy's offensive might was concentrated in narrow sectors

at the base of the Kursk salient. Of the forces that were on the Soviet-German front, the fascists gathered 70 percent of their tank divisions and over 65 percent of their aircraft. The Wehrmacht command placed great hopes on the new combat equipment--"Tiger" and "Panther" tanks, "Ferdinand" assault guns, "Fokker-Wolf-190" aircraft and "Henschel-129" ground-attack aircraft.

The Hitlerite High Command mapped out pincer attacks at the base of the salient to surround and destroy troops of the Central and Voronezh fronts.

The Soviet leadership clearly pictured the impending events, the complexity and strain of the upcoming battle. This was considered in light of the fact that the governments of England and the United States broke their commitment to open a second front in Europe in 1943 and subsequently, the Soviet Union was again left alone to enter into the most difficult skirmish with the main forces of the fascist bloc.

The Communist Party carried out vast work in the mobilization of the material and spiritual forces of the country. Millions of Soviet people at the front and in the rear strenuously prepared for this new, severe test. In 1943 in the Soviet Union, tanks, self-propelled guns, guns and mines were produced at double the rate as in 1942. Our aviation industry built up to 35,000 aircraft, or nearly 10,000 more than German industry. The fighting quality of Soviet combat equipment, by many criteria, surpassed that of the enemy.

The correct strategic foresight of the Soviet command exerted a great influence on the outcome of the armed struggle, returning to the summer of 1943, as well as the outstanding operation of all aspects of our reconnaissance. The enemy's plans were disclosed in a timely manner. The composition of his strike groupings were specified. The time for the beginning of the enemy offensive became known.

Although the strategic initiative was already on our side, the Soviet leadership made a decision to build a powerful, deeply-echeloned defense in the area of the Kursk Bulge, to wait at these lines for the beginning of the enemy offensive, and to wear down and drain the blood from his attack groupings, and then to transition to a counteroffensive. In this way, the Soviet command used the enemy's own activity to weaken him.

The enemy offensive at Kursk had to repel troops of the Central and Voronezh fronts, commanded by generals K.K. Rokossovskiy and N.F. Vatutin. In the rear of the Kursk salient, the powerful reserves of the headquarters were concentrated--troops of the Steppe Military Okrug under the command of General I.S. Konev. Overall coordination for actions of forces of the fronts was carried out by representatives of the headquarters, marshals G.K. Zhukov and A.M. Vasilevskiy.

The Soviet command proceeded from the fact that it was necessary to crush the enemy's tank spearhead in the tactical zone of defense, since their breakthrough in the area of Kursk had placed the troops defending the western face of the bulge in an extremely difficult position. Special effort was directed to organizing antitank and antiaircraft defenses. This was satisfied by a

great quantity of engineer constructions and obstacles. In the belt of the Central and Voronezh fronts, the length of trenches and communications trenches reached 10,000 kilometers. In all, eight defensive lines were constructed with an overall depth of up to 300 kilometers. To solve the problem of defense, the large-scale forces of combined arms armies, tank and air armies, artillery and antiaircraft defense weapons were brought in and, as needed, reserves of the Supreme High Command could be brought into the fight. Such a powerful defense in all the previous stages of the war had not been created.

In the predawn hours of 5 July 1943, heavy artillery and air strikes were brought down on Wehrmacht formations preparing for the offensive. The enemy took considerable losses and his strength for the initial attack was weakened.

The developing struggle became extremely intense. The enemy tank corps, supported by massed artillery fire and air strikes, continuously assaulted the Soviet defenses. In the direction of the enemy's main attacks, troops of the 13th Army of General N.P. Pukhov and 6th and 7th guards armies of generals I.M. Chistyakov and M.S. Shumilov fought heroically.

The Soviet troops vigorously defended themselves, therefore the battles were often meeting engagements. On the south face of the Kursk salient on 12 July a heavy counterattack was launched on the enemy tank force, straining toward Kursk from the south. The main role in it belonged to the 5th Guards Tank Army of General P.A. Rotmistrov and the 5th Guards Army of General A.S. Zhadov. They were transferred to forces of the Voronezh front from the headquarters reserves. Southwest of the settlement of Prokhorovka, the largest tank encounter battle of World War II took place, with 1,200 tanks and self-propelled guns of both sides taking part. On this day the Hitlerites lost nearly 400 tanks.

The defensive battle of Soviet troops began on 5 July, and already by 12 July its primary missions were achieved. The enemy tank formations took serious losses and their striking power was undermined. And although on the southern face of the Kursk Bulge the defensive battle lasted until 23 July, in this period the Soviet forces already accomplished limited missions--they repulsed a local attempt by the enemy to continue the offensive, and then took up positions held prior to the start of the battle.

The enemy was stopped over the course of a week and his maximum breakthrough amounted to 12-35 kilometers in all.

The great success of the Soviet command appeared to be that it determined the crisis moment when the enemy's offensive was ripe and correctly selected the time to switch over to a counteroffensive. This permitted more fully to use the success of the defensive battle.

From 12 July the character of the struggle in the Battle of Kursk sharply changed. Soviet forces switched over to a counteroffensive. It lasted 43 days--until 23 August.

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Forces of the left wing of the West and Bryansk fronts, under the command of generals V.D. Sokolovskiy and M.M. Popov moved first. After three days forces of the right wing of the Central front under General K.K. Rokossovskiy were included.

On the Orel axis, carrying out an operation codenamed "Kutuzov" since the middle of July, Soviet forces persistently broke through the powerful, earlier prepared enemy defenses in several sectors. Great success was achieved by the 11th Guards Army of General I.Kh. Bagramyan. By 19 July its formations and units had pushed 70 kilometers forward.

Trying to retain the Orel bridgehead, the German-fascist command directed reinforcements to the area of Orel. But the Soviet Supreme High Command, by throwing large strategic reserve forces into the battle, broke the enemy's attempt to stabilize the front.

On 5 August, after intense battles, troops of the Bryansk front in conjunction with troops of the Central and West fronts liberated Orel. Taking losses, the enemy's Orel group retreated to the west. By 18 August the enemy's Orel bridgehead was liquidated.

While the Soviet Army smashed the enemy at the Orel bridgehead, on the south face of the Kursk salient it readied yet another attack on the enemy--operation "Polkovodets Rumyantsev". On the morning of 3 August, after heavy artillery and aviation preparation, troops of the Voronezh and Steppe fronts, under the command of generals N.F. Vatutin and I.S. Konev, launched a counter-offensive. On this day the main enemy defensive zone was broken. The 1st and 5th guards tank armies of generals M.Ye. Katukov and P.A. Rotmistrov went into the gap. They, like a mighty sword, delivered a deep cutting blow. On 5 August, having crushed enemy resistance, troops of the Steppe front liberated Belgorod.

With joy the Soviet people received news of the expulsion of fascists from two rural Russian cities--Orel and Belgorod. On 5 August 1943, exactly one month after the beginning of the Battle of Kursk, the sky over Moscow was illuminated with the flashes of the first victory artillery salute of the Great Patriotic War.

By an attack of the 1st and 5th guards tank armies, the enemy defense was broken into two parts. By 11 August, forces of the Voronezh front had cut the Kharkov-Poltava rail line and threatened to encircle the enemy's Kharkov group from the southwest.

On the night of 23 August, troops of the Steppe front, with active support from the flanks of the Voronezh and South-Western fronts, began to attack Kharkov. On this day the greatest economical and political center in the south of the country was freed from the fascists--for now and for always. Soviet forces broke through to the south 140 kilometers, having broadened the attack front to 300 kilometers. [The German] Army Group "South" suffered a shattering defeat.

With the crushing defeat of the enemy's Belgorod-Kharkov groups and liquidation of this bridgehead in this area, the Battle of Kursk ended.

This was an event of an enormous scale. In the Battle of Kursk, successively on both sides, over 4 million men, over 69,000 guns and mortars, more than 13,000 tanks and self-propelled guns and more than 11,000 combat aircraft were involved.

In the course of the Battle of Kursk the enemy lost nearly 500,000 soldiers and officers, 1,500 tanks, 3,000 guns and over 3,700 aircraft.

The 50 days of intense struggle in the Fiery bulge predetermined a great deal in the outcome of the Great Patriotic War and the entire Second World War. Finally the offensive strategy of the Wehrmacht collapsed. The Soviet Army's counteroffensive halted the strategic offensive.

The Donbass, the Left Bank Ukraine and a number of areas in Central Russia were liberated, Soviet troops entered Belorussia and successfully forced a crossing of the Dnieper, having cut the "Western wall" built by the enemy, and began liberation of the Right Bank Ukraine. It became apparent that the Wehrmacht's shift to strategic defense was not able to stabilize the front in the East, to save fascist Germany and its allies from final defeat.

The prominent role in the victory at Kursk belongs to the Soviet art of war. The Soviet command solved a series of complex problems in the area of strategy, operational art and tactics. The involved mission of selecting the direction for the main strike, massing forces and means in the decisive directions, was successfully solved. Further development in mutual support between front groups and development and use of reserves was obtained. Both in defense and on the offensive, the most important role belonged to the artillery. Soviet armored troops emerged the victors from opposition with the powerful enemy tank forces. In air battles at the Fiery bulge, Soviet aviation once and for all won air supremacy.

The Battle of Kursk exerted a deep influence on the course of the rest of World War II. Fascist Germany and its allies irrevocably lost the initiative and, in all of the theaters of World War II, were forced to switch to strategic defense. The crisis within the fascist bloc was intensified all the more, and the process of its disintegration had begun.

The crushing defeat of the Wehrmacht in the East exerted a decisive effect on the events in Italy. The Wehrmacht's basic forces were held on the Soviet-German front, and the fascist command was forced to send newer and newer troops and reinforcements to the East, weakening the forces in Western Europe. In the fall of 1943, it was able to oppose Anglo-American troops in Italy with forces that were obviously insufficient to create a firm defense on the Apennine Peninsula. Therefore, it was by no means accidental that the collapse of Italian fascism began during the Battle of Kursk.

The victory of Soviet forces at the Fiery bulge became a mighty stimulus for broadening the antifascist and national liberation movements in Europe.

The people of the world saw with their own eyes that in spite of the lack of a second front, the Soviet Armed Forces dealt fascist Germany newer and newer severe defeats. The authority of the USSR as a decisive force in the struggle with fascism grew even more.

The victory in the Battle of Kursk was profoundly natural. It was the result of a feat of arms and selfless labor of the Soviet people, led by the Communist Party. Its sources lie in the fact that socialism provided the invincible unity of Soviet society, economic power, high development of the science of war; it trained outstanding fighting men and military leaders. The Kursk victory stands as one of the great feats of the Soviet people; its Armed Forces in the heroic battle for freedom and independence of the Socialist Motherland, for rescuing humanity from fascism.

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ARMED FORCES

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LETTERS TO EDITOR, RESPONSES

Indoctrination Deficiencies Criticized

Moscow KRASNAYA ZVEZDA in Russian 25 Oct 83 p 2

[Article: "Following KRASNAYA ZVEZDA Coverage: 'In Subordinates' Eyes'"]

[Text] The critical article by Lt Col V. Zhitarenko published by that title on 19 July discussed shortcomings in the indoctrinational work with personnel in Unit "X" of the Moscow Military District. It was noted in particular that Lt Col V. Prisyazhnyy was allowing distortions of disciplinary practice and instances of crudeness toward subordinates.

Col M. Zhuravlev, deputy chief of the district political directorate, informed the editors that appropriate supervisors had been given strict instructions that they had not displayed sufficient principle in evaluating the state of affairs in this unit. Lt Col Prisyazhnyy was given disciplinary punishment and measures of party influence were applied to him as well.

Remedying of the deficiencies in organization of political indoctrination work in the unit noted in the article was taken under supervision by the district political directorate.

Fellow Countrymen Cliquish

Moscow KRASNAYA ZVEZDA in Russian 26 Oct 83 p 2

[Letter to editors by Sr Sgt I. Gumerov, Red Banner Volga Military District, and response by HSU Col Vladimir Timofeyevich Yevdokimov: "A Frontlinesman's Word: Countrymen"]

[Text] One would think many have had occasion to see a similar picture. On the very first day of their arrival in the subunit new recruits are literally showered with questions: Where are the lads from? Are there some from Saratov? And who will there be from the Urals? Everyone is happy to find countrymen and this is understandable. It is pleasant to realize that serving next to you is a person with whom you are associated not only by the interests of

service but also by recollections dear to the heart about places where you were born and grew up.

But here is what is troubling in this regard. I don't know how it is for others but of late some of my colleagues have begun to become too isolated in their "associations of fellow-countrymen." The collective seemingly has been broken into Tula, Ufa and Tashkent residents...

At first glance there is nothing bad in this. Well, you think, the countrymen are spending their offduty time together. It happens where one group tries to set itself in opposition to another. Some have a contemptuous attitude toward colleagues, saying "We are Muscovites. We have this and that and how about you?" Everything begins with seemingly innocent "egging on" but at times it ends in mutual insults. Sometimes it comes down to curious matters. Recently, for example, we were policing up our grounds and soon discovered that Sr Sgt Fargat Balakadyrov had "disappeared" somewhere. It turned out he had gone over to work in another area where his countrymen were. It would appear that this understanding of the association of fellow-countrymen does not contribute to a strengthening of friendship and troop comradeship or to cohesiveness of the military collective.

I would like to learn the opinion of a Great Patriotic War participant on this matter.

Sr Sgt I. Gumerov
Red Banner Volga Military District

The editors requested HSU Col Vladimir Timofeyevich Yevdokimov to express his opinion on the issues touched on in Sr Sgt Gumerov's letter.

First of all I would like to say that the issues brought up by Sr Sgt Gumerov have caused me to reflect more than once. In fact the word "countrymen" is a simple one but how many different nuances it contains and how closely it is linked with many moral and social categories.

Of course that corner of the country where we were born and grew up is dear to each of us. When talk turns to home, the paternal home and native village or city surfaces in each one's memory, and this is good. The people say that a person who has lost his roots and ties with the land on which he took his first steps loses a great deal in life. Without love for his small home it is impossible to become a true citizen and patriot.

I am proud that I come from Pskov Oblast, from those very places where the Red Army was born in battle. And I will say that this feeling helps me greatly in

life. It always was with me at the front as well, including in the first fighting at Moscow in October 1941 as part of a people's home guard division. By the beginning of the war I was living in the capital and the division consisted almost wholly of native Muscovites. It had both young workers and plant veterans and there were gray-haired professors and students--all Muscovites came to the defense of their native city, our capital.

I remember we were digging trenches. Through inexperience I had not provided myself with mittens and very soon filled my hands with such blisters that it was intolerable even to work further. One elderly militiaman noticed this and extended canvas mittens known as "verkhonki" to me. "Take them, countryman!" he said. I began to explain that I wasn't from Moscow but from Pskov Oblast but he said that it didn't matter where I was from, the important thing was that we were in the same combat formation, which meant we were countrymen.

I recalled that conversation many times and, from fight to fight, with every month of the war I became more and more convinced that the feeling of being fellow-countrymen always was inseparable for frontliners from a feeling that was stronger and of larger scale--the feeling of a single combat family. I saw that they never perceived their home in isolation but as a part of our great Soviet Motherland.

Toward the end of the war I was serving in the division commanded by Maj Gen B. Gorodovikov. He was a person of selfless courage and generous soul. In postwar years he worked a long while as first secretary of the Kalmyk Oblast committee of the CPSU. Here is what I always think about in recalling him: how the national and international merged intrinsically in this person and how much he, a son of Kalmykiya, did for the sake of liberating many rayons of the Ukraine, Russia and the Baltic.

I also always will remember our regiment's political deputy Maj Ya. Nachkebiy, a native of Georgia and a person of great valor and courage.

My comrade-in-arms HSU Lt Vasiliy Yakovenko was born in the Ukraine but died in Smolensk Oblast in liberating Dukhovshchina. The city's residents built a monument to the hero and rightly consider him their countryman. Company party organizer and Kursk resident MSgt I. Alekseyev died the death of the brave in Smolensk Oblast and here his place in combat formation was taken by his son Mikhail. Now Mikhail is a kolkhoz chairman at his home in Kursk Oblast, but he also calls the Smolensk land his home.

Representatives of all republics of our multinational Motherland fought shoulder to shoulder at the front. Submachinegunner Uzbek R. Saidov was wounded in combat but did not abandon his comrades and continued to strike down the enemy. When Machinegunner A. Yusupov died his place was taken by Ukrainian K. Nezdoliy. And how many wounded Jr Lt Med Serv A. Babekov carried out from under fire! If all were to be counted then he, a Kazakh, would have not just countrymen but brothers in blood in many parts of our country.

It is with a special feeling that I come each time to Lithuania and not just because residents of the city of Shakyay chose me as their honorary citizen.

I lost many of my combat friends here and that is why this land is so dear to me. Those with whom I fought shoulder to shoulder are never to be forgotten.

I also met a countryman on Belgorod land three decades later. I recognized HSU Maj (Ret) Yegor Ivanovich Mazikin from his voice. In July of 1944 the companies which we commanded at that time were among the first to make an assault crossing of the Neman.

We also regarded all rear toilers as our countrymen at the front. I recall a delegation from Chita Oblast visiting us in the division. We took the behest of the Transbaikal residents to strike the enemy mercilessly as a paternal behest. That is how countrymen in far-off Siberia also appeared for me and my comrades in arms.

Those are the facts of far-off wartime which Sr Sgt Gumerov's letter forced me to remember. I believe that in telling about them I expressed my attitude definitively enough toward those displays of "countrymen's fellowship" discussed in the letter. Gumerov is right: They are not so very harmless, those "eggings on" and attempts to place one's city and one's village over others. It is every person's right to be proud of his home area and the labor achievements of countrymen. But not to give that right to others means to become like an ignorant, narrow-minded person.

It is very difficult to understand the position of those soldiers who place the "principles" of countrymen's fellowship above the interests of duty and the precepts of troop comradeship. Not knowing the state of affairs in this military collective I won't undertake to give any recommendations. One thing is without question: Such facts are a definite signal to commanders, political workers and the party and Komsomol organizations. They force a critical look at the state of indoctrinal work, which must be linked closely with life and meet those high criteria defined by the June 1983 CPSU Central Committee Plenum.

Officers Reluctant To Be Reassigned

Moscow KRASNAYA ZVEZDA in Russian 26 Oct 83 p 2

[Letter to editors by Lt Col N. Shabalin and response by Col Gen Arty Yu. Gor'kov, chief of staff of Moscow ADD: "A Current Issue: To the 'Site' Again?"]

[Text] Dear Editors!

We workers in a personnel entity recently came across a fact which prompted me to think about turning to KRASNAYA ZVEZDA.

At one time Capt P. Kalmychkov was recommended for advancement as a very knowledgeable, promising officer. Then recently Kalmychkov was offered an advancement but he declined. He didn't want to leave a well-organized post and change it for a "site."

This incident unfortunately is not isolated. Now and then you encounter an officer who is offered an advancement in the interests of the common cause and his own career which assumes a transfer to a new, less settled area and he expresses dissatisfaction with such a turn of events. Some people even are perplexed at this: "Why do I have to go to a 'site' again?" It's enough, they say, that they have already spent time under such conditions.

Possibly KRASNAYA ZVEZDA will deem it expedient to touch on this issue in its pages.

Lt Col N. Shabalin

The editors familiarized Col Gen Arty Yu. Gor'kov, chief of staff of the Order of Lenin Moscow Air Defense District, with this letter and requested him to share his opinion on this matter.

I read the letter and what now already is a far-off time of my officer youth quickly came to mind.

It began probably as it did for a majority of those who decided to devote their Army career to the Air Defense Forces, at an unsettled "site" that was not well organized. My comrades from military school A. Krasil'nikov, V. Malyavin, A. Gridnev and other contemporaries who just received lieutenant shoulderboards ended up under similar conditions as well. I won't conceal the fact that I pictured my entry into an officer position differently. My imagination pictured a well cared for military post outfitted with classrooms according to the last word in pedagogics and good living spaces... Everything proved to be more complicated here.

From the first day I had to work on engineer organization of the position, place a bunker in order and heat frozen water in the mornings in order to wash. Adding to this, our air defense battery was performing operational readiness duty and I had to be at the "site" constantly.

I can see my first "lieutenant's" New Year as if it were now. Some kind of old movie was being "rolled" in a crowded room adapted as a living space, but the school's New Year's balls and the sparkling merriment which reigned at them arose in my memory. I returned to my bunker without seeing the end of the boring film. I was lying there drowsing and suddenly--I thought I was dreaming!--I saw the division commander Maj Gen Arty M. Kiknadze stride through the door. It turned out he was making the rounds of regimental "sites" on this freezing New Year's Eve. He greeted me politely and asked how I felt. What the general said then I remembered all my life.

"Don't be dejected. Years will pass and you will remember your duty time here later as a most excellent time. You'll remember both your soldiers and this bunker. The important thing is that you will test yourself to see who you are and what you are capable of doing..."

That is what the division commander said at that time. Later I had occasion to change almost ten "sites" almost one after the other in these parts. As with my other classmates from school, I gained more and more confidence in my own abilities. Frankly speaking, the difficult duty far from the high roads forged character and became more and more a genuine school of command and life. We lieutenants learned to understand the soldiers who were our subordinates better and we became accustomed to independence.

An understanding of the special uniqueness and importance of duty in the Air Defense Forces, which often involved a change of locations, developed a constant readiness to be "light on our feet." I will note by the way the correctness of the words by the author of the letter to KRASNAYA ZVEZDA regarding the fact that these reassessments usually also are made in the interests of the career growth of the officer himself. Never mind that they involve rejection of well-organized populated points and a need to begin a new life at a new location.

Once after many years of service, already as chief of staff of a surface to air missile regiment, I received a superb three-room apartment in one of the oblast centers but I only had occasion to use it three months. A new assignment followed: mountains and a plain settlement lost among them... I had difficulty finding a little room where my family of four was accommodated.

As always happens, I was fortunate at the new station as well to have people deeply dedicated to military duty and goal-oriented. Capt Yu. Kislitsyn arrived in the regiment after completing military academy. He wasn't alone: He had a wife and a very small daughter. I knew that the most difficult regimental "site" awaited Battalion Commander Kislitsyn. The officer didn't even give the appearance that he was troubled by upcoming duty "under the stars." His combat girlfriend, wife Zina, proved to be the captain's equal. She had a cultural institute behind her and while her husband worked on official duties at the "site" she really stirred up the officers' families.

Kislitsyn continues to serve in the Air Defense Forces and has become a colonel.

Also not to be forgotten are many of those whom I consider myself fortunate to have come to know in three and a half decades of duty in the western and southern parts of the country and in Siberia and the Far North. Among them were many young officers who worthily withstood stern ordeals in fighting difficulties. They were not frightened by remote posts. Here they went through a remarkable university of life and school of maturity as commanders, political officers and military engineers. Among them was Capt S. Sychev, a radar company commander who was awarded the medal "For Combat Merit," and Officer A. Rakitnyy, who by the way was promoted to the rank of captain ahead of schedule.

Officer V. Skripko also is not to be forgotten. I had a memorable meeting with him in Siberia. He was offered an enviable advancement from a radar company right to a radiotechnical battalion, but he was obstinate, saying "I've

had enough; I'll serve the authorized time and then take a rest..." But common sense gained the upper hand. Later Skripko successfully commanded a battalion, completed military academy, took over a regiment and made it outstanding. Siberian party members elected him a delegate to the 26th CPSU Congress.

Duty at "sites" is special duty, and not only because it involves difficulties. Here you gain a special feeling of personal participation in the work of defending the Motherland and you feel yourself to be a fighter on the forward edge. It is the more so now when the international situation has been aggravated sharply. In my view this feeling above all must guide the actions of every officer who has dedicated his life to duty in our forces, who in peacetime are performing a combat mission.

Those are the reflections which the letter from the KRASNAYA ZVEZDA editorial mailbag generated in me. Let this be a commentary on what troubled the author.

Role of Unit Duty Officers Questioned

Moscow KRASNAYA ZVEZDA in Russian 26 Oct 83 p 2

[Letter to editors by Sr Lt Tech Serv V. Sil'chenko and response by Lt Gen Avn P. Belonozhko, first deputy chief of main staff of Air Forces: "An Authoritative Opinion: This is Not Done for Form's Sake"]

[Text] Dear Editors!

So-called responsible officers are assigned daily in our subunit. It is their duty to monitor strict fulfillment of the order of the day, prevent infractions of military discipline and so on. Of course, such supervision and assistance to the commander are of some benefit. Nevertheless, I believe that there often is little use for responsible officers, especially if an engineer, technician or other aviation specialist is appointed as such, for by virtue of the specific nature of their duty they don't know all NCO's and privates in the subunit well, which reduces the effectiveness of indoctrinational influence on personnel.

I also noticed the following. For example, the following points are included in the duties of the responsible officer in our subunit: form up personnel for proceeding, let's say, to the mess hall, conduct the evening stroll and so on. In carrying out all this I see how it reduces the responsibility of the privates' immediate supervisors, the warrant officers [praporshchiki] and sergeants, whom I simply substitute for at their duty posts. And so I wonder whether or not such a responsible officer is necessary.

Sr Lt Tech Serv V. Sil'chenko

The editors requested Lt Gen Avn P. Belonozhko, first deputy chief of main staff of the Air Forces, to share his opinion on this matter with the readers.

I believe Comrade Sil'chenko raises an important issue in his letter. Let's be frank: The facts indicate that not all officers have a proper understanding of the role of unit or subunit duty officer, as the officer appointed for additional supervision over the observance of military order and efficiency sometimes is called. Therefore, let's first clarify why and for what purpose such persons are appointed.

As experience shows, successes in combat and political training and an improvement in vigilance and combat readiness depend to a decisive extent on firm military discipline. Article 51 of the USSR Armed Forces Interior Service Regulation states: "The commander (chief) must establish and maintain firm internal order in the unit, aboard ship or in the subunit, immediately remedy infractions of duty procedures which are noted and resolutely cut short any action which may harm the combat readiness of the unit, ship or subunit."

The special attention of every commander must be directed at strengthening conscious military discipline, preventing subordinates' misdeeds, and promptly identifying and remedying the causes for them.

The regulation grants a commander broad rights in reinforcing military discipline and envisages the application of decisive steps for this purpose. If required by the situation, the commander has the right to order any subordinate officer to be, for example, in the barracks and monitor observance of strict regulation order.

Practical experience shows that the duties of such an officer may vary depending on the specific situation. It is of course primarily supervision over preparation and performance of duty by the daily detail, maintaining regulation order in the unit or subunit, and assisting the commander and political officer in conducting cultural tours and athletic and other similar activities.

Such a measure unquestionably is used where not everything has yet been done in the unit or subunit to maintain strict regulation order.

As the facts indicate, some officers who are aviation specialists unfortunately do not work enough on subordinates' indoctrination, have little contact with personnel in off-duty time, and show no interest in the living conditions of NCO's and privates or in their moods and hobbies. For some reason such officers believe that indoctrinal work is the duty only of the subunit commander and political officer and allegedly other officers have nothing to do with this. This of course is a deeply erroneous opinion. A unit or sub-unit commander must see to it that every officer regardless of his position or specialty takes an active part in the personnel's indoctrination.

It must be noted here that the assignment of officers who are aviation specialists to monitor observance of strict regulation order in the unit or

subunit helps include them in work with people if of course the commander prepares the supervising officer carefully to perform the duties by instilling an indoctrinator's skills in him.

At the same time some commanders define duties and assign tasks in an ill-conceived manner to officers being appointed to check the execution of orders and instructions they have given. As a result, as Comrade Sil'chenko writes to the editors, these officers really do double or substitute for junior commanders and persons on the daily detail. This is inadmissible. An officer assigned for supervision must not substitute for them, but specifically monitor their fulfillment of regulation duties.

Additional supervision is a necessary but of course a forced step. The main way toward strengthening regulation order is well organized daily indoctrination work and an increase in the role of junior commanders. If the work of preventing infractions of military discipline is well arranged in the unit or subunit then the need for assigning officers for additional supervision disappears of itself. But once an officer has been assigned for supervision, this must not be for form's sake.

Military Construction Officer's Responsibilities Discussed

Moscow KRASNAYA ZVEZDA in Russian 26 Oct 83 p 2

[Letter to editors by Sr WO V. Mezheninov and response by Engr-Col S. Bogorodtskov, chief of personnel department of Main Military Construction Directorate: "A Suggestion: A Commander in Formation, but at the Construction Site?"]

[Text] Dear Editors!

According to the established procedure subunits of military construction workers consist of brigades which work at construction sites under the direction of foremen, construction superintendents and sector supervisors. It turns out that the platoon commander bears no direct responsibility for organizing production or for results of subordinates' work. He remains the commander only in the unit and in the barracks.

Isn't it better to have the platoon commander simultaneously be a foreman and perform a certain part of the work with his subunit? It seems to me this would have a beneficial effect both on labor efficiency and on discipline of military construction workers.

Sr WO V. Mezheninov

At the editors' request Engr-Col S. Bogorodtskov, chief of the personnel department of the Main Military Construction Directorate, answers the letter's author.

As a matter of fact, Comrade Senior Warrant Officer, the combining of duties of construction platoon commander with the functions of a production supervisor is a reasonable and advantageous matter. That is why this already is a rather extensive practice at many military construction sites as an experiment, especially where platoons of military construction workers formed into consolidated brigades are performing construction and installation work under the brigade contract method.

Such an experiment also has been under way since January 1983 at construction sites of our main administration. Consolidated cost-accounting brigades of military construction workers have been formed in the military construction collectives headed by Engr-Col V. Mirzoyev and Engr-Lt Col V. Razumovskiy. For example, the cost-accounting platoon-brigade headed by WO V. Shukalo is simultaneously building two residences and achieving high production indicators.

It still is too early to discuss final results of the experiment, but even now it is apparent that the effectiveness and quality of construction clearly gains from such a reorganization.

A word must be said here about difficulties in the new undertaking as well. The mass adoption of consolidated cost-accounting subunits must be conducted in parallel with an improvement in the structure of management of construction production.

Another problem also must be resolved, that of preparing the warrant officer as a commander and head of the construction site and the organizer of labor processes who moreover would be able to carry out planning, accounting and analysis of the brigade's work and would be a materially responsible person.

At the same time I would like to object to you that you are incorrect in believing that under the present conditions a platoon commander's functions end with the arrival of military construction workers at the site. The platoon commander, warrant officer and officer's closest assistant remains such everywhere, and always and everywhere he must be a champion of firm military and labor discipline and of subordinates' order and efficiency in the barracks, at the construction site and at any other location.

Delay in Reservist's Personal File Resolved

Moscow KRAFNAYA ZVEZDA in Russian 26 Oct 83 p 2

[Letter to editors by WO (Res) N. Semenchuk, Vinnitsa Oblast: "Red-Tapists Punished"]

[Text] Two months already have gone by since the time I was released to the reserve. In these two months I have visited the Yampolskiy Rayon military commissariat an innumerable number of times. I keep hoping that my personal file will arrive from the unit where I served.

But for some reason these hopes are not being borne out. I request your urgent help, for I have to obtain a passport, register at my new place of residence and find a job.

WO (Res) N. Semenchuk,
Vinnitsa Oblast

Dear Nikolay Dmitriyevich! Realizing your difficult position, we immediately contacted the personnel directorate of the Turkestan Military District. Acting deputy directorate chief Lt Col B. Cherepenkov looked promptly into the problem you raised and took steps to see that your personal file was sent immediately to its destination.

We also were informed that WO V. Svityuk, one of the persons at fault for the more than two months of red tape, was given a demotion in position for the negligent attitude toward performance of official duties. Those appointed persons who did not concern themselves with prompt supervision of execution also were punished strictly.

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ARMED FORCES

OFFICERS IDENTIFIED IN KRASNAYA ZVEZDA

PM241428 [Editorial Report] Moscow KRASNAYA ZVEZDA in Russian 18 November 1983 Second Edition front-pages a report by Lieutenant Colonel A. Polyakov, KRASNAYA ZVEZDA correspondent with the central group of forces, under the headline "Gathering of Academy Graduates" which identifies Lieutenant General V. Pankratov as "Chief of Staff of the Central Group of Forces."

PM241154 Moscow KRASNAYA ZVEZDA in Russian 19 November 1983 Second Edition front-pages a report entitled "Meeting at the Komsomol Central Committee" by Captain A. Kovalev. The report notes that the 18 November meeting was addressed by "Lieutenant General D. Zhilnikov, first deputy chief of the Strategic Missile Forces Political Directorate."

KRASNAYA ZVEZDA 20 November Second Edition front-pages a TASS report entitled "Polish Order Presented to Academy." The report, describing the presentation of the Polish Order of Merit to the M. I. Kalinin Red Banner Artillery Academy in Leningrad on 19 November, notes the presence of "Lieutenant General of Artillery V. M. Mikhalkin, commander of the ground forces rocket troops and artillery."

The same issue carries on page 2 an article entitled "The Prestige of the Commander's Post" by "Rear Admiral V. Smaragdov, chief of the Red Banner Northern Fleet Cadres Directorate."

PM251600 Moscow KRASNAYA ZVEZDA in Russian 25 November 1983 Second Edition publishes on page 2 under the headline "Our Motto--Be on the Offensive!" a reply to a reader's letter on the current military report and election campaign. The author of the article is identified as "Major General Ye. Makhov, first deputy chief of the Baltic Military District Political Directorate."

PM281325 Moscow KRASNAYA ZVEZDA in Russian 26 November 1983 Second Edition carries on page 2 a 2,000-word article under the rubric "Commanding Officer and Modern Combat" entitled "Combat Activity." The article sums up the results of various airborne landing exercises, drawing parallels with World War II battles, and at one point quoting Marshal of the Soviet Union M. N. Tukhachevskiy on the need for a commanding officer's flexibility in taking fast decisions.

The author of the article is identified as "Lieutenant General V. Kostylev, first deputy commander in chief of airborne troops."

CSO: 1801/108

ARMED FORCES

KIRGHIZ KOMSOMOL PLENUM DISCUSSES FOREIGN RADIO, MILITARY SERVICE

[Editorial Report] Frunze LENINCHIL JASH in Kirghiz 28 July 1983 pages 1 to 3 carries three speeches presented at the 6th plenum of the Kirghiz Komsomol Central Committee held [on 23 July 1983] in connection with the June plenum of the CPSU Central Committee on ideological matters. On page 3 is the 2,100-word speech of Komsomol Central Committee Secretary L. I. Shetsova. She maintains that the data from sociological investigations conducted in various parts of the country show that more than 80 percent of the audience that listens to foreign radio stations consists of young people. "Sometimes young people consider them as a source of information about world events.... Of course, we understand that many young people use these broadcasts only to listen to music and popular groups, but all the same, they are unable to understand very well the political significance of listening to foreign radio stations." She also discusses the preparation of young men for military service, which is especially important in light of the complex international situation. There are a number of shortcomings in physical education, particularly with regard to the low-level of physical education efforts among the masses. Analysis has shown that only 7.1 percent of the young men called into military service from Kirghizia passed the III degree of the GTO ["Ready for labor and the defense of the USSR"] Complex. In addition, while in the Komsomol organizations of the republic there are broad opportunities for the sending of Kirghiz youths to military training establishments, last year Kirghiz young men made up only 0.2 percent of those registered as officer candidates at these schools throughout the country.

CSO: 1830/142

GROUND FORCES

LT GEN KALININ COMMENTS ON TRAINING EXERCISE

Moscow KRASNAYA ZVEZDA in Russian 4 Oct 83 p 1

[Article by Lieutenant Colonel A. Bedzhanyan, KRASNAYA ZVEZDA correspondent: "In the Dynamics of Battle"]

[Text] In a trench, under a camouflage net, the commander of a motorized rifle battalion, Captain V. Vasilenko, and the commanders of the attached and supporting subunits were settled. The officers carefully studied the forward edge of the "enemy's" defense, and determined the disposition of its firing points.

The situation was difficult. The "enemy" had created a powerful defense, saturated with antitank means, minefields, and obstacles. In these conditions, a great deal depended on continual control of heterogenous forces and means in the dynamics of battle, and on their efficient cooperation.

At the established time, the thunder of the artillery cannonade broke the silence of the firing range. The fire preparation for the attack had started. The tanks of the company commanded by Captain V. Voropayev struck the most dangerous objectives, advancing for direct firing. The battalion began a swift movement to the line of transition to the attack.

The "enemy" took countermeasures. From a low-growing thicket targets appeared, helicopters imitating his fire support. Air defense troops opened fire on them.

Meanwhile the combat engineers had already prepared gaps in the "minefield." Firing lanes drew through the hilly land with dry grass--in several sections, gaps were made with explosive devices. As soon as the gaps were ready, the battalion started to breach the obstacle. It did that both through the gaps which had been made, and by using weighted mine sweepers. This allowed, in minimal periods of time, the breaching of dangerous sectors and the swift attacking of "enemy" strong points.

The companies under the command of Captain V. Tsegel'nik and Senior Lieutenant N. Popel'skiy, having seized the attack objectives from the march, began the pursuit of the withdrawing "enemy." The combat actions acquired a still greater intense character--the "enemy" launched a counterattack not only on the flank, but also on the battalion's rear.

Captain Vasilenko decided to repel the counterattack: With a company of the second echelon under the command of Senior Lieutenant V. Duranichev. At the same time one of the artillery battalions received the mission to provide defensive fire in the direction of the tank threat; the combat engineers were instructed to protect the threatened flank with "field mines."

When the "enemy's" combat vehicles approached on the attack, a fountain of explosions rose before them. Minelayers traversed the given course. The subordinates of Senior Lieutenant Duranichev occupied an advantageous position with a swift rush, and opened friendly fire.

But these offensive efforts were insufficient. A sudden change in the battle occurred when the left-flank company, under the command of Captain Tselgel'nik, covered by a smoke screen, outflanked the counterattacking "enemy" forces and opened fire on them. Combat helicopters, directed to help the battalion, completed the defeat of the enemy reserves.

The results of the combat firing were detailed later. Despite the complexity of the tactical situation, and sudden changes in the target situation, the tankers hit nearly 90 percent of the targets. The artillerymen fulfilled all tasks with an "excellent" rating. The motorriflemen, air defense troops, and troops of other subunits achieved high marks in the training.

Commentary of the First Deputy Commander-in-Chief of the Red Banner Carpathian Military District, Lieutenant General N. Kalinin

In the course of our combat training in the okrug great significance is given to commander's preparation, in particular to perfecting skills of officers in controlling heterogeneous forces and means in combat. Its results are particularly clearly visible in exercises which are being conducted now at the finish of the training year.

Tactical training with combat firing, about which we are talking, is significant in this regard. A complex tactical situation and saturation of the training battlefield with various targets presented ample opportunity to the battalion commander, Captain V. Vasilenko, and other officers for displaying these qualities in full measure. Efficiently harmonious cooperation, timely formulation of tasks to the motorriflemen and to the attached and supporting subunits, rapid change of combat formations depending on the situation, and complete utilization of combat means of equipment and arms provided a high offensive tempo, and in the final analysis, success in battle.

It is necessary, in my view, also to note particularly that the exercise director did not stifle the initiative of the battalion commander and other officers; conversely, with the help of innovations he gave them tasks, one more complex than the other. Direct tank fire at the very start of the battle, the combined method of breaching a minefield, sudden changes in the direction of attack, and variants of the target situation, created conditions as close as possible to real combat.

In a complex situation, the officers successfully passed the exam in command maturity, and, in the dynamics of battle, firmly held in their hands the threads of controlling heterogeneous forces and means.

This training once again pointed out how important it is to complicate the situation, to intensify its dynamism with the help of various innovations, and to obtain from the officers constant initiative and combat activeness. This is the correct path to raising their tactical skill. One of our major cares now is that all training is conducted with such high effectiveness in the concluding stage of the training year, so that all subunits fulfill the plan of combat and political readiness, and obligations in competition, with high quality.

12198

CSO: 1801/36

NAVAL FORCES

WORKING RELATIONSHIP BETWEEN JUNIOR OFFICERS, MICHMEN EXAMINED

Moscow KRASNAYA ZVEZDA in Russian 19 Oct 83 p 2

[Article by Michman A. Kovalenko, petty officer of an outstanding crew, master of military affairs: "In One Compartment"]

[Text] My former colleague, an older, knowledgeable michman, recently returned from a lengthy ship's voyage. Although he is usually cheerful and smiling, this time he looked aggrieved.

"Imagine," he said with irritation, "a man studies five years in school and he still doesn't know his own specialty."

"Who are you talking about?"

"About my compartment commander, a lieutenant who joined the ship just before the trip. Throughout the whole voyage I was reprimanded for his mistakes."

Not knowing all the circumstances it was hard for me to advise the michman. Perhaps the young officer about whom he spoke truly experienced great difficulties and did not do all his duties as he should. That can happen at the start of one's service. But is he alone guilty? Throughout the voyage his subordinates, many of whom, of course, are experienced specialists, worked along side of him. Did they, for their part, give the necessary support to the young officer, for whom this was the first ocean voyage? Apparently something was not right in the complex mechanism of intra-compartmental relations.

I could not help but remember in this regard an experience which I myself had to go through. Several months ago Lt Engr N. Tsymbal was assigned as commander of our compartment. I remember how he looked the first time I saw him: slender and well-built, with an inquisitive look.

The lieutenant-engineer quickly passed the tests to independently control the operation. The ship commander even praised him and he was made an example to other young officers. But the most difficult part for Tsymbal still lay ahead.

His lack of experience and knowledge of the nature of the sailors working for him was a telling factor. He began to allow mistakes in instruction and at times used a not really proper tone in his relations with people. Once he even lost his temper with me and spoke undeservedly harshly.

At such times I could not help but compare Tsymbal with the past compartment commander. And then it became even more clear that the lieutenant-engineer made a lot of mistakes in his work, that he could not determine what was most important in his everyday concerns, and that he was frequently inconsistent. One time he would be excessively severe and by-the-book, and would carp on unimportant details. Then in the next hour he might place no importance on the fact that clean-up in the compartment was done poorly, or that the sailors came to training sessions unprepared and even late. "The previous commander," Tsymbal thought to himself, "was consistent in his expectations, without unjustified lapses. I believe that is both why he was respected, and why each of us was more demanding of himself."

In regard to this, I notice that our mutual concern about coordination in our work brought good results. The compartment was always first in all indices in competition, and was considered the best on the ship. But from the time Tsymbal arrived we gradually began to lose our former positions.

But one day the following thing happened. Lt Engr Tsymbal was hurrying one of the crews taking a reactor out of operation. I decided to make a suggestion:

"It's early, Comrade Lieutenant, let them take a break."

At first, Tsymbal, as usual, shrugged his shoulders as if to tell me not to insist, that he knew what he was doing. But he corrected his error, and at shift change he came up to me with a friendly smile:

"Thank you, Aleksandr Borisovich, for your help. But tell me your secret, how did you notice my mistake?"

That was the first time that the young officer called me by first name and patronymic and asked for help. And I had already almost given up hope that the chill of estrangement would ever leave our relationship. It turns out that I could not understand my commander so well unless I had thought about this. Our talk turned out to be frank and very useful for us both. It became clear that Tsymbal suffered keenly his every mistake, blamed himself for everything, and seeing no support from me, tried to solve all problems himself. And from the side it seemed that due to inexperience he jumped from one extreme to another.

After this incident everything got straightened away and we understood each other. The overall atmosphere in the compartment also improved. Once I saw Tsymbal ask meticulous questions of experienced specialists PO 2d Class I. Babashinskiy and Sr Smn A. Fedorov concerning the details of the operation of one of the mechanisms. And their eyes fairly sparkled, as they thought: How is it that an officer, a commander, sees fit to learn something even from us. Seeing this I was also truly happy for the lieutenant. He had taken the right approach. There is no disgrace in asking a question or clarification from a subordinate. We can all learn something from each other.

Recently our nuclear submarine completed an important training mission. Circumstances were such that a particularly heavy burden and responsibility fell upon the sailors of our compartment. The compartment commander acted

irreproachably. No matter what situations arose on the trip, in every instance he made competent, well-founded engineering decisions. In turn, his subordinates did everything to implement them. As a result the equipment worked reliably.

When the intense combat training ebbed, the same PO 2d Class Babashinskiy came up to me and remarked in admiration:

"It turns out that it is not for nothing that our lieutenant is wearing hammers on his shoulder-boards."

Of course it's not for nothing. Nor is it for no reason that he was assigned as compartment commander. He proved this convincingly by his deeds.

Everything is now in order in our compartment. We are working harmoniously and with good teamwork. The on the whole small disorder which occurred immediately after the arrival of the young commander probably could be forgotten. It could be written off as the natural process of his getting used to the collective and the collective to him. But the fact is that the time required for this process could have been much shorter.

Now this question does not let me rest: What kept me, not expecting the lieutenant to make a step in my direction, from doing so myself? I think it was my incorrect understanding of my role in the compartment and on the ship. I thought: Tsymbal is the commander, I am his subordinate. So why should I come forward with advise and help? I he needs it he will ask. And also I resented the lieutenant for his hot temper, and took umbrage, to be honest, at trivialities. And what happened was that, having much more practical and life experience than Tsymbal, I nevertheless was a poor assistant to the young commander and ended up in the role of a disinterested observer of his difficulties and failures.

At times there still exists this sort of psychology among us michmen: We fulfill our duties and the rest doesn't concern us. In this way, of course, our service life is calmer and simpler. Only such an attitude toward service never brought anyone true satisfaction.

Once I heard a curious argument in the michmen's wardroom. One participant, a michman, was complaining about the lack of prospects in his service.

"A lieutenant comes on board ship," he said to his comrade, also a michman, "and he learns and acquires experience from you. And after some time you see him advance up the ladder until he is section or even a ship commander. And you, as a michman, stay where you are, there in the same compartment, working with the next lieutenant who is no less inexperienced than the last."

"But it is how you look at things," said his comrade. "You could look at it as we michmen being entrusted to help future ship commanders."

I remembered these words. Of course they contain some exaggeration. The process of training officer cadres, and especially ship commanders, is

extremely complex and many-sided. But it is unquestionably true that the foundation of their future as commanders is laid while they are lieutenants. It is also indisputable that the experience, wisdom and lasting loyalty to the navy which the officer's good and unselfish adviser and assistant, the michman, transmits to him during his days as a lieutenant can and must be an important brick in that foundation. This is not noble desires or utopia. There really are in the navy many such michmen about whom unit and ship commanders and staff officers speak of as their former teachers.

The young officer and the experienced michman -- This situation can be found in practically any crew. This link, like any other link in the chain of interpersonal relations formed in any navy collective, must be reliable and secure. Much also depends on how the lieutenant arrives on the ship, and who he sees in the michman, an assistant, or [a rival]. It is a shame that there are also cases when some young officer who has been on-board less than a year acts as if he knows everything, condescends toward the michman, and even more considers a petty officer or sailor to be beneath him. As a result he himself suffers, and more importantly, the work suffers.

No, those who serve on the same ship and in the same compartment must not lapse into any sort of false pride. The concerns of officers wearing shoulder-boards and of michmen are one and the same -- the combat readiness of their ship. Their task is a mutual and responsible one. This means they must always and in everything work harmoniously and in close communication and contact.

9069
CSO: 1801/78

NAVAL FORCES

SUBMARINE CREW NEGLECTS STUDIES; COMMANDER PUNISHED

Moscow KRASNAYA ZVEZDA in Russian 20 Oct 83 p 1

[Article by KRASNAYA ZVEZDA Correspondent Capt 2d Rank A. Zlydnev and Sr Lt A. Rozhnov, Red Banner Pacific Fleet: "What's Behind the 'Individual Incident'"]

[Text] According to schedule, specialty training was to be carried out on the submarine. However, the staff officers who visited the ship for inspection discovered that many of the crew were not so engaged. Some sailors, having apparently remembered at the last moment, were simply pretending that they were studying the equipment. Some training leaders appeared in no better light to the inspectors. Some of them had no training outline and others had not bothered with specialty literature. Capt Lt A. Senov, for example, frankly admitted that he did not know the subject of the training and did not consider the training to be useful. He said that during the training year the torpedo men had done well, and why should they repeat what they had already done.

Later, back in the unit headquarters, the submarine commander tries to pass off what happened as an individual incident. He said that everything was due to personal disorganization displayed that day by individual officers and warrant officers. In essence, then, everything boiled down to the assertion that it would be easy to eliminate the shortcomings since they were episodic and would not likely tell on the fulfillment of crucial firing exercises at the end of the training year. The commander's assurances were taken in good faith, and in the time remaining before firing the staff officers did not greatly trouble the ship with their visits. As it turned out they also forgot to remind the crew of the need to improve specialty training and to more thoroughly study the capabilities of modern military equipment.

The indifference displayed by the ship's commander, and later the forgetfulness permitted by the staff officers soon bore fruit. The submariners earned a low evaluation on their sea training mission, due to poor knowledge by some specialists, especially the members of the torpedo crew. Then the staff again recalled the results of the inspection, which should have alerted them but failed to do so, and had not prompted them to look more deeply into the unhappy state of affairs in the crew. Had they made a more timely and honest assessment it is possible that higher results would have been attained at the firing.

What became clear when the staff officers visited the ship again? Not only did the subordinates of Capt Lt A. Senov possess inadequately sound specialty

skills, as was suggested above, but so did a number of other specialists. Simply stated, the crew was not always able to manage its training time. Frequently certain measures were planned, but entirely different ones were conducted. Moreover, some specialty training leaders were people picked at random and did not possess either solid methodological skills or a feeling of high responsibility. In this regard the following example is instructive. Engr Lt S. Kovalenko, who had not yet passed the tests to be an independent instructor, nevertheless was named compartment commander and leader of survivability training. Undoubtedly the young officer even wanted to teach his subordinates something, but hardly know how to do it. And no help could be expected.

It is not surprising that with this sort of regard for the training process the crew gradually acquired an attitude of indifference and calmness toward low marks, which in time became commonplace. Somehow the high goals in military training and competition outlined at the start of the year were forgotten. The fact that according to the results of the winter training period the ship occupied one of the last places in the unit did not prick up anyone's ears. Of course there was talk about it in the meetings, but it was somehow listless and lacked the spark of healthy ambition.

It could not be said that the ship commander did not attempt to correct the situation in the crew and to activize competition. But he did so without involving a wide circle of party and komsomol activists. The results of the commander's efforts were meager. And the commander's speech, which many recalled, assessing the clearly alarming inspection results as an "individual incident," was an attempt to conceal his own mistakes.

The unit headquarters made an honest assessment of what had taken place. The submarine commander and his deputy for political affairs were severely punished by both the chain of command and the party. I believe that the staff officers, who must have known the true state of affairs on the ship but were very late in acting to eliminate them by waiting until the end of the training year, also drew the necessary conclusions.

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CSO: 1801/78

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Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 1-2

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**COLORED INSERTS: British Jaguar-GR.1 Fighter-Bomber, American UH-60A
Black Hawk Multi-Purpose Helicopter, Crossing by Leopard-1 Tanks, British
F88 Broadsword Guided Missile Frigate**

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FOREIGN MILITARY AFFAIRS

NATO MILITARY STRATEGY DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 11-17

[Article by Col (Retired) G. Semin: "NATO's Military Strategy"]

[Text] The defeat of fascist Germany, Italy and militaristic Japan in World War II played an important role with respect to altering the balance of power on the planet in socialism's favor. The victories gained by the socialist nations, the successes achieved in the world revolutionary movement and the struggle waged by peoples of the colonial and dependent states have infuriated the imperialist camp. One of the main objectives of the USA in creating the North Atlantic alliance was to unite the nations of Western Europe into a military-political bloc to prepare for and initiate a war of aggression against the Soviet Union and other states which had set out on the socialist path of development.

As this aggressive military-political bloc developed, its so-called allied (coalitional) military strategy took shape. The strategy's political nature is determined by the socioeconomic system of the participating nations, by their openly militaristic policy and the class anti-communist, anti-Soviet interests of the monopolistic bourgeoisie.

A study of the military doctrines of the NATO nations shows that with certain differences in the political course and in the level of economic development and geographic location of each state, they are based on a coalitional military strategy, that is, on views coordinated and accepted by all of the bloc members on the nature of military operations in the NATO zone and the methods of conducting them, the development of joint armed forces for the bloc and the equipment of a European theater of war. They are also united in their assessment of the main likely enemy. They unanimously consider this to be the Soviet Union and the other socialist commonwealth nations.

The United States of America, whose armed forces comprise the backbone of the capitalist world's military power, exercises the decisive influence with respect to the development of NATO's coalitional strategy. After the USA adopted the "massive retaliation" strategy in 1954, for example, it was accepted a year later by the leaders of the North Atlantic alliance as the basis for its military strategy, and since 1967 the "flexible response" strategy has been in effect in NATO (also developed by the American administration). The FRG's role has recently increased markedly. It makes many suggestions with respect to the development of the bloc's strategic concepts.

According to the foreign experts the coalitional military strategy differs from national strategies in that it does not have a common military-economic basis, as do the national strategies, and unlike them, it cannot directly affect economic and technical military policy. It is also limited to the specific theaters of war, beyond the borders of which the NATO states carry out military actions in accordance with the principles of their national military strategies. The NATO allies of the United States did not participate directly in the war it initiated in Indochina, for example. The military intervention in the internal affairs of Zaire by the USA, France, the FRG and Belgium in June of 1978 was carried out under a specific compact among those nations. In the Anglo-Argentine conflict over the Falkland Islands (Malvinas) the other nations in the bloc did not participate directly in the combat operations, and Great Britain therefore continued its traditional colonial policy by employing only its own armed forces. It received complete political, economic and diplomatic support from its NATO allies, however, especially the USA. The latter, the foreign press reported, also provided the British armada with intelligence obtained from American satellites.

NATO's current coalitional military strategy divides modern wars into universal nuclear and limited wars, and there can be variations of these.

A universal nuclear war is defined as a war between coalitions headed by the USA (NATO) and the USSR (the Warsaw Pact). This is a global armed conflict, which is a threat to the national existence of the combatants and in which all existing weapons (nuclear and conventional) and resources may be put into action. The political objective of the NATO bloc in such a war would be to eliminate the socialist system in the USSR and the other socialist commonwealth nations. The NATO experts define the European and Atlantic theaters of war as the main areas of military operations. The strategic nuclear forces of the USA, Great Britain and France constitute the main means of conducting a universal nuclear war. The foreign experts have recently come to believe that such a war may be drawn out, continuing several weeks or even months. They do not rule out the possibility of a universal war in the future involving only conventional weapons.

Recently the USA has been stubbornly imposing upon the North Atlantic bloc the idea of preparing NATO's Joint Armed Forces for conducting military operations in a universal conventional war with general-purpose forces and primarily with conventional weapons. Specifically, the Western press has begun mentioning the "Rogers Plan" (an American General and supreme commander of NATO's Joint Armed Forces in Europe), which states that nuclear weapons are not to be used in the initial stage of a military conflict. The West German newspaper FRANKFURTER ALLGEMEINE, however, has stated that the concept called the "Rogers Plan" does not mean that the bloc's members have rejected the possibility of being first to carry out a nuclear attack. By advancing the new concepts, which are oriented toward the conduct of a universal war with conventional weapons, the American strategists are pursuing their own selfish objectives of limiting a war to the European continent, diverting a retaliatory strike from the USA and further whipping up the conventional arms race in the NATO nations.

The main strategic missions in a universal war with conventional weapons would be to defeat the armed forces of the Warsaw Pact and the other socialist nations, to occupy their territories and establish control over the populations of the socialist nations. In the opinion of the Western experts a universal conventional war would be a long one (lasting several years) and would require the expenditure of large human and material resources. It would most likely take place in a situation in which the distribution of political forces in the world would be favorable to the West, with superiority in both nuclear and conventional weapons and the existence of considerable reserves of men and materiel making it possible to deploy large armies.

It is believed that a fundamental change in the balance of general-purpose forces in NATO's favor is an essential condition for unleashing an all-out nuclear war in Europe. It is planned to accomplish this in the following ways: by creating an acute political crisis in certain European socialist nations or in the socialist commonwealth as a whole, which would paralyze interaction within the commonwealth and undermine the general defense capability; by drawing the Soviet Union into a burdensome conflict in the Far East; by achieving qualitative and quantitative superiority over the enemy for NATO's Joint Armed Forces.

While accepting the possibility of a total conventional war in the future, the leaders of the North Atlantic bloc proceed in their planning of military operations from the acknowledgement that at the contemporary stage NATO's Joint Armed Forces are not yet in a position to achieve the assigned objectives with conventional weapons alone.

The foreign press stresses the fact that the development and implementation of plans for extensive penetration into the developing nations and expansion of the bloc's sphere of activities constitutes one of the most important questions pertaining to the further development of NATO's coalitional military strategy. The U.S. and NATO command have decided on the basis of the two world wars that in the future it will be impossible to contain the area of combat operations within the boundaries of Europe and the North Atlantic, whatever the nature of the armed conflict. The use by the combatants of lines of communications passing through other continents and sources of raw materials located outside Europe, as well as the deployment of strategic nuclear weapons in many areas of the World Ocean, make it necessary, they claim, to include territories and bodies of water contiguous with Europe--the Near and Middle East, the South Atlantic, the Indian Ocean--in NATO's sphere of activity in good time. It is planned to prepare them as theaters of military operations while there is still peace and to create special interventionist forces. By way of implementing these plans, leading circles of the USA and NATO have drawn Spain into the bloc and stepped up their efforts to form military-political alliances among the regimes of Southwest Asia, as well as southern Africa and Latin America. All of this is further confirmation of the fact that the imperialist forces are making all-out preparations for total war.

A number of new elements in theoretical views on the conduct of a coalitional war have been noted in the Western press (primarily American) in recent years. Among other things, the fact is stressed that in the "flexible response" strategy there has been a certain overestimation of the place of each of the possible

types of warfare at the Pentagon's initiative. Previously, the main stress was on preparations for a total nuclear war, while today greater attention is being devoted to enhancing the readiness of NATO's Joint Armed Forces for initiating and conducting a limited war. The NATO experts consider a limited war to be any of various types of armed conflicts which do not reach the scope of a total war: a nuclear conflict in which it is planned to use the nuclear weapons of a theater of war within the boundaries of one or several theaters of military operations; a war involving only conventional weapons; a local armed conflict, strictly limited with respect to objectives and weapons, as well as to territory.

The main objective of a limited war in Europe would be the elimination of the socialist system in one or several Warsaw Pact nations and a significant weakening of the Soviet Union. Until NATO adopted the decision in 1979 to deploy American medium-range nuclear missiles in this area, missiles capable of striking targets within the USSR, such a war was regarded as only a stage in the escalation of combat operations, which could ultimately lead to a universal nuclear war. The views of the NATO experts have been changing somewhat under pressure from the American command, which designates this as a separate kind of war--a nuclear (or conventional) war in a theater of war. According to the foreign experts, the deployment of so-called "European nuclear forces" within Western Europe and the creation of its "small nuclear umbrella" there will make such a war an isolated one. It can no longer be regarded as only a stage in the escalation of combat operations on the threshold of a total nuclear war. It is believed that the North Atlantic bloc's existing forces--conventional, tactical nuclear and "Eurostrategic nuclear"--will permit the bloc to achieve military-political objectives in Europe on its own, without resorting to the strategic nuclear forces of the USA. All of this will ostensibly force the Warsaw Pact to discontinue the armed struggle on terms advantageous to the West and make it possible to avoid a retaliatory strike against U.S. territory.

Drastic changes in the strategic situation can also be caused by conflicts arising in vitally important areas in regions bordering upon the allies on the two sides or in bodies of water adjacent to them. A confrontation in such areas could then lead to a local military conflict between the two coalitions, which, judging from past exercises, would first involve the use of only conventional weapons and be conducted in a single theater of military operations. NATO's mobile forces, to which seven reinforced battalions of ground forces and seven squadrons of tactical aircraft of the participating nations have been assigned in peace time, would play an important role at this stage. The foreign experts believe that they are most likely to be used in their entirety or in part on the bloc's flanks, but their use in other areas of Europe is not ruled out. In view of the fact that the USA is demanding that NATO's sphere of influence be extended to the Near East and Africa, the mobile forces could be activated in those areas as well.

The Western press stresses the fact that the nations located within the given region will initially be involved in a local conflict, with NATO states located in other theaters of military operations subsequently entering the war. A war in Europe, begun as a limited war, can develop into a total nuclear war, and in the future, into a total war involving only conventional weapons.

In accordance with the coalitional military strategy NATO's joint commands and staffs are constantly refining the operational-strategic alternatives for using the bloc's Joint Military Forces, primarily the nuclear forces, and its plans for conducting separate strategic operations and the war as a whole. In preparations for a war the main attention is given to the European theater, where a large grouping of armed forces (almost 3 million men) has been created in peacetime. It consists of approximately 80 divisions and 90 separate brigades, over 3,000 nuclear-weapon delivery units, up to 4,000 combat aircraft and 900 ships of the main classes.

NATO's directing bodies have adopted a long-range program of organizational development for the bloc's Joint Armed Forces for the purpose of achieving superiority in conventional weapons over the Warsaw Pact nations. It includes outfitting the Joint Armed Forces with new and highly effective weapons and modernizing existing weapons, developing comprehensive, automated intelligence systems and systems for controlling troops, weapons and means of conducting radio-electronic warfare, perfecting methods of deploying the armed forces and so forth.

Under pressure from the American administration NATO has decided to actually increase military allocations by 3 percent annually (a 4-percent increase is now being demanded). A significant increase in the quantity of modern combat equipment is anticipated by the beginning of the 1990's, with a relatively small growth in the numerical and the effective strength of the bloc's grouping of Joint Armed Forces in Europe. In all of the NATO nations priority is being given to outfitting the units and formations with new and more effective tanks-- the M1 Abrams, Leopard-2, AMX-30 and Challenger (an improved Chieftain tank), infantry combat vehicles, anti-tank and air defense weapons and various types of helicopters. The air forces are receiving new tactical aircraft (the F-15, F-16, A-10, Tornado, Alpha Jet), AWACS and control aircraft (E-3A and Nimrod). The Pentagon plans to deploy reconnaissance and assault systems (PLSS and Assault Breaker) in the European theaters of military operations, which would make it possible to conduct continuous reconnaissance and destroy enemy targets hundreds of kilometers away.

The bloc command attaches great importance to the matter of improving the strategic deployment of NATO's Joint Armed Forces. This includes the following: working out measures providing for the more rapid and effective mobilization of reserves; deploying new formations; increasing warehouse stocks of modern weapons, combat equipment and other materiel; qualitatively improving the armaments in reserve elements and enhancing their combat readiness; working out and coordinating plans for the use of civilian vessels and aircraft for transporting reinforcement forces to Europe; and enlarging participation by reserve units and subunits in exercises conducted jointly with the regular forces.

According to the NATO experts, the implementation of steps specified in the long-range program will make it possible, in case of mobilization, to rapidly (within 48 hours after mobilization is begun) alter the balance of personnel on the two sides in NATO's favor, while the time required for the strategic deployment of the bloc's Joint Armed Forces could be cut to 10 days.

Massive deliveries of highly accurate, guided weapons to the forces should increase their fire capabilities, significantly enlarge the troops' capabilities for performing fire missions and simultaneously cut the number of personnel and the quantity of equipment needed to destroy targets. And this is crucial with respect to implementing the system of simultaneous destroying enemy groupings to a considerable depth, without increasing the numerical or the effective strength of the forces.

In NATO the idea of a "strike in depth" outlined in recent manuals of the U.S. Army--the concept of an "air-to-ground operation (engagement)"--is reflected in the "Rogers Plan." This plan calls for preparations for conducting highly maneuverable operations involving the simultaneous destruction of enemy forces with fire to the entire depth of their operational deployment for purposes of preventing a build-up with the timely introduction of reserves and second echelons into the battle. This plan is clearly an aggressive one, which involves retaining the initiative from the very beginning of combat operations.

It should be noted that despite the publicizing of the new views on the possibility of conducting future combat operations with conventional weapons alone, extensive modernization is actually underway on the entire arsenal of nuclear and conventional weapons of the USA and the other NATO nations, as is the deployment of new means of mass destruction. Among other things, preparations are being made for deploying medium-range nuclear missiles in Western Europe, the troops are being outfitted with more powerful and accurate tactical nuclear weapons, and the production of neutron ammunition is being set up.

While constantly intensifying the militaristic neurosis, the NATO commands and staffs are thoroughly working out various means of conducting warfare in numerous exercises and maneuvers. It is believed that the main such method in a total nuclear war will be that of simultaneously destroying the enemy to the entire depth of his territory by conducting mainly massed strikes against nuclear missiles, large groupings of forces, state and military control facilities, extremely important administrative-political and industrial centers and other military and economic targets in the Soviet Union and other Warsaw Pact nations. This calls for active combat operations by ground, air and naval forces.

An attack, planned in advance and thoroughly prepared, undertaken by large groupings of forces after a brief period of strategic deployment of the bloc's Joint Armed Forces is considered to be one method of launching a total conventional war. The main attention in this case is given to achieving success in the initial operations in the theater of military operations and seizing the strategic initiative. These things depend upon the timely deployment of field forces and formations in the European theater of the war.

The simultaneous or successive routing of the enemy's main groupings in the most important land and sea theaters of military operations is considered to be a feasible system for conducting combat operations in such a war, and the strategic operation (both in a total nuclear war and in a conventional war) is considered to be the main form of operation. It consists of a combination of diverse operations, coordinated and interacting, by ground, air and naval forces, conducted simultaneously or successively according to a single plan and under a single command.

In the opinion of the Western experts the objectives of the first strategic operation by NATO's Joint Armed Forces in a total nuclear or even a conventional war would consist in destroying the enemy's nuclear capability, defeating its armed forces, putting its control facilities out of action, capturing extremely important strategic installations and areas of the enemy's territory, gaining the strategic initiative and on certain axes, holding their own territory.

Theoretical views on the conduct of a limited coalitional war within NATO's zone of control are adequately outlined in the concept "forward edges" ("forward defense" in NATO terminology). "Forward defense" consists in gaining time and space for implementing the mobilizational and strategic deployment of the bloc's Joint Armed Forces and creating the conditions necessary for the successful execution of the first strategic operation. It could include a nuclear attack in a theater of military operations (if the combat operations involve nuclear weapons), offensive and defensive operations by ground and air forces, and in coastal theaters of military operations, naval forces as well (to gain superiority at sea and blockade the enemy fleet, mainly enemy submarines). It is felt that it will be impossible to transfer troops in time and deploy NATO's Joint Armed Forces without gaining superiority at sea, and impossible to successfully conduct strategic operations by all branches of the armed forces without gaining air superiority.

In accordance with this concept forces in the first strategic echelon, which are deployed directly on the borders of the Warsaw Pact nations, must be prepared not only to engage in defensive operations in support of the mobilization and the transfer of reserves (including reserves from the USA) for building up the effort, but also to switch to an offensive in certain situations. The main requirement is that they not lose even a small part of their territory and that they carry combat operations onto enemy territory at the very beginning of the armed conflict.

The concept "forward edges" involves two methods of initiating and conducting a war in Europe:

--Nuclear weapons would be used from the very beginning of the armed conflict, a preventive nuclear strike would be made with operational-tactical means to the entire depth of deployment of the enemy's forces, nuclear and air superiority would be gained and an offensive by groupings of ground forces would be started successively or simultaneously.

--The attacking grouping of enemy forces would be destroyed at the forward edges with conventional weapons and if there is a threat of a breakthrough, with tactical nuclear weapons. Even with a successful defense, however, a switch to a counteroffensive might involve the use of nuclear weapons.

NATO's coalitional military strategy has always specified that the bloc's command will be the first to use nuclear weapons. This is the essence of the "flexible response" strategy and is regarded as a "deterrent" to a likely enemy.

NATO's coalitional military strategy at the contemporary stage is distinguished by increasing acceptance of U.S. military doctrine and a clearly defined

offensive and aggressive essence. The basic principles of forestalling the enemy in the mobilizational deployment of the armed forces, the gaining of the strategic initiative at the very beginning of the armed conflict and the extensive employment of nuclear, chemical and other weapons are undergoing ever-increasing development in it.

According to the foreign experts, the forced implementation of the long-range military program by the NATO bloc, the main elements of which it plans to complete in the 1980's, can significantly increase the strength of the Joint Armed Forces of that bloc, which are the main instrument for implementing imperialism's expansionistic plans.

Overall, NATO's strategy is overtly aggressive and focuses on the launching of a war against the Soviet Union and the other socialist nations. This makes it essential for Soviet fightingmen, together with the fightingmen of fraternal armies, to vigilantly guard the conquests of socialism.

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FOREIGN MILITARY AFFAIRS

U.S. DEPARTMENT OF DEFENSE 1984 FISCAL BUDGET

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 20-26

[Article by Candidate of Economic Sciences L. Nikolayev: "The U.S. Defense Department's Proposed Budget for Fiscal Year 1984"]

[Text] The Soviet Union is struggling persistently to assure a peaceful future for mankind. Despite the efforts made by our homeland to achieve and strengthen peace on earth, however, the threat of a new world war, the threat of a nuclear catastrophe, has not only not been reduced in recent years but has actually increased due to the aggressive policy of the imperialist nations led by the USA. Military preparations in the United States have taken on unprecedented scope.

Failing to keep preelection promises, President Reagan in his budget request for the next fiscal year has clearly given priority to military programs, destroying the last hopes of ordinary Americans for some sort of improvement in the area of social security, education, public health and other "purely civilian" areas. For all of these items the federal budget continues to "grow thinner." Only allocations for military purposes--a mirror of the ambitious aspirations of the White House's current boss of achieving military superiority for the USA over the USSR--are constantly growing. The draft budget for the Department of Defense being considered by Congress reflects an open course toward continued militarization of the U.S. economy, the undermining of the strategic balance existing in the world and a declaration of a "crusade" against communism.

In fiscal year 1984, which begins on 1 October 1983, the official military budget of the USA (the so-called federal "National Defense" program*) is expected to amount to 280.5 billion dollars, which is 14.3 percent greater than this year's allocations. And the American economists predict that these allocations will continue to grow over the next 4 years. They will be increased another 1.5-fold, reaching 432.7 billion dollars in fiscal year 1988. It is planned to allocate 1.8 trillion dollars for military purposes for the forthcoming 5-year period as a whole. Military expenditures by the USA in 1988 will be an estimated 385.6 billion dollars, which exceeds 1983 expenditures by 79.5 percent.

Expanding the scale of financing for military preparations to this extent will significantly increase the militarization of the U.S. economy. According to

* For information on the main items in the USA's military budget and categories of financing see: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No. 7, 1980, pp. 23-25--Editor.

information published in the American press, military expenditures will grow to 7.7 percent of the U.S. gross national product in 1988 and to 34.2 percent of the federal budget, compared with 6.1 and 25.7 percent respectively in 1982. The rechanneling of money into military business is being accomplished by "cutting" federal programs, which is damaging to the vital interests of millions of ordinary Americans. The foreign press notes not only a reduction in the portion of the budget accounted for by civilian items, but also a direct reduction in the amount of funds allocated for a number of programs. Government expenditures for such federal programs as "energy," "agriculture" and "natural resources and the environment" will be cut by more than 30 percent between 1983 and 1988. Outlays for vocational training and education will be reduced by 11.7 percent; outlays for education--by 8.4 percent; social and regional development--6.9 percent; and unemployment compensation--by 5.5 percent.

The unprecedented growth of military allocations is the main factor contributing to the large deficit in the U.S. federal budget and to the steady growth of the national debt. According to reports in the foreign press, the federal budget deficit will amount to 188.8 billion dollars in 1984. The Reagan Administration is not even indicating hopes of eliminating the deficit within the next few years. It has only outlined the task of attempting to reduce the deficit to 117 billion dollars by 1988, that is, to bring it down approximately to the level for fiscal year 1982. Such deficits were not produced by a single former administration. According to official estimates, the country's national debt will increase by 16 percent in 1984 alone, reaching 1,606 billion dollars. A clear growth trend in the debt is in evidence for the entire immediate future. A national debt of 2,047 billion dollars is expected in 1986, for example. This means that the debt will have doubled in 5 years, reaching almost 50 percent of the anticipated gross national product. Interest on the debt alone will amount to at least 134 billion dollars in 1986, which is more than 13 percent of the federal income.

Another important indicator that militaristic preparations are being stepped up in the USA, along with the significant growth in total military allocations, are changes being made in the structure of the military budget and the priority being given to increasing funds for enhancing the striking power of the armed forces and raising the level of the national economy's mobilizational readiness for war.

The foreign press reports that it is planned to allocate 274.1 billion dollars directly to the Pentagon in fiscal year 1984, which exceeds this year's allocations by 14 percent. A total of 6.8 billion dollars has been requested for programs for the use of nuclear energy for military purposes (an increase of 19.3 percent in a year). Around 80 percent of these funds (5.4 billion dollars) is designated for developing and producing nuclear weapons, including neutron weapons, and for producing special nuclear materials. It is planned to significantly increase the amount of money spent on the creation of nuclear reactors for the Navy to 600 million dollars, an increase of 46.3 percent.

Allocations for the Federal Emergency Management Agency will increase by 31.4 percent in fiscal year 1984, to 385 million dollars. More than 65 percent of this will be used to strengthen civil defense. Under a 7-year program 254 million dollars will be spent to develop civil defense in 1984, which is 71.6 percent more than has been allocated for this year.

Funds allocated by the General Services Administration for the purchase of strategic raw materials and scarce materials have been set at 120 million dollars for fiscal year 1984.

Along with the official budget for the Department of Defense, allocations for a number of officially civilian items in the federal budget will continue to be actively used for military purposes. A graphic example of this is the budget for the National Aeronautics and Space Administration (NASA), which is officially a part of the federal General Science, Space and Technology program. The bulk of the funds allocated for NASA are spent for the development, testing and perfection of space transport systems, including the reusable Shuttle manned spaceship, designated primarily for Pentagon use. More than 4 billion dollars is earmarked for this program in 1984, the same as for this year. Around 600 million dollars will be spent on research in the field of aeronautics, the results of which will also have primarily military application.

The distribution of allocations for the Defense Department among the /main programs/ (Table 1) provides a graphic picture of the priorities assigned by the American leaders to the financing of the armed forces and military projects, which are presently receiving special attention from the American leadership.

The official budget documents show that the Reagan Administration is actively implementing a policy of accelerated build-up of the U.S. strategic forces. A record 28.1 billion dollars has been requested for the /Strategic Forces/ program for fiscal 1984, which is 36.4 percent more than has been allocated for the current year and which exceeds the 1981 level by 2.2-fold. It will have accounted for more than 10 percent of the total budget for the Defense Department over the past decade and a half--for the first time. Furthermore, considerable amounts of money are being allocated for the creation of new strategic weapons systems under the Research and Development program. Expenditures on NIOKR[scientific research and experimental design work] for the strategic forces will be an estimated 9.2 billion dollars in fiscal year 1984. Allocations for these purposes will be increased by 55.2 percent compared with 1983, and by 97.6 percent compared with 1982. As a result of these rapid growth rates the percentage of total allocations for the U.S. Defense Department for scientific research and experimental design work will grow to 31.1 percent of total allocations for 1984 (the figure was 22.9 percent in 1982).

In the opinion of the Reagan Administration the enormous amounts of money it is channeling into the development and procurement of strategic weapons systems should accelerate the development of all components of the USA's so-called "strategic triad." The sea-based Trident missile system is presently being actively deployed. The foreign press reports that it is planned to allocate 1,832,100,000 dollars in fiscal year 1984 for the construction of yet another (the 11th) nuclear-powered missile submarine of the Ohio class, and 587.2 million dollars for the purchase of 52 Trident-1 missiles. Other expenditures under this program will amount to another 884.3 million dollars next year. The drastic increase planned for the financing of Trident-2 missile development reflects an attempt by the USA's military leadership to force the development of a future strategic offensive weapons system. Allocations for these purposes will be increased by more than 4-fold to an estimated 1,496,400,000 dollars.

Figure 1. Distribution of Total Allocations for the U.S. Department of Defense Among the Main Programs (billions of dollars)

(1) Основные программы	Финансовые годы		
	(2) (3) 1982 (фактически)	(4) 1983 (оценка)	(5) 1984 (проект)
Стратегические силы (6)	15.3	20.6	22.1
Силы общего назначения (7)	88.1	100.8	109.6
Исследования и разработки* (8)	12.9	18.7	23.5
Силы для переброски войск по воздуху и морем (9)	4.0	4.2	5.2
Военная разведка, развитие систем связи, наблюдения, контроля и управления (10)	13.9	17.1	20.0
Резервы вооруженных сил (включая национальную гвардию) (11)	10.4	11.4	11.6
Централизованное тыловое снабжение и ремонт вооружения (12)	18.7	21.3	24.1
Обучение, медицинское обслуживание и материально-техническое обеспечение личного состава (13)	39.6	42.5	45.6
Административно-управленческая деятельность (14)	3.8	3.1	4.0
Военная помощь другим странам (15)	0.9	0.8	0.7
(16) Всего	211.4	240.5	274.1

*This does not include scientific research and experimental design work for systems already approved for production.

Key:

1. Main programs	11. Military reserves (including the National Guard)
2. Financial year	12. Centralized rear supply and armaments repair
3. (actual)	13. Training, medical services and material and technical support for the personnel
4. (estimate)	14. Administration and management
5. (draft)	15. Military aid to other nations
6. Strategic forces	16. Total
7. General-purpose forces	
8. Research and development	
9. Forces for transporting troops by air and sea	
10. Military intelligence, development of systems of communications, surveillance, monitoring and control	

Implementation of the program for acquiring the B-1B strategic bombers is in full swing. It is planned to finance the production of 10 such aircraft in the next fiscal year, which will involve a total sum of 6,179,600,000 dollars (including spare parts). This is 53.2 percent more than was allocated for 1983. The cost of scientific research and experimental design work under the B-1B program has been set at 749.9 million dollars. Great importance is also attached to the perfection of the B-52 strategic bombers. In fiscal year 1984 383.8

million dollars (443.9 million including other outlays under the program) is being allocated for the modernization of 41 B-52G and B-52H aircraft, as well as for the conversion of 42 of these aircraft for carrying long-range cruise missiles.

Deployment of the new MX intercontinental ballistic missiles (ICBM) is the main element in the development of the third component of the U.S. strategic offensive forces. Despite the debates in Congress on the system for basing the missiles, the Reagan Administration is planning to finance the production of 27 such missiles in fiscal year 1984 at a cost of 2,867,300,000 dollars. A total of 6,635,700,000 dollars will be allocated for the MX program, including scientific research and experimental design work and the deployment of the intercontinental ballistic missiles. This is 89.2 percent more than allocated for the current fiscal year (considering an additional 988.0 million dollars requested).

Along with the offensive components of the strategic forces, great importance is attached to the further perfection of strategic systems of communications, monitoring, control and intelligence incorporating the latest scientific achievements, especially achievements in the area of laser and space technology. Large amounts of money are being spent to develop promising components and assemblies for anti-missile defense systems. According to foreign press reports it is planned to allocate 709.3 million dollars for these purposes in 1984.

It is planned to allocate 109.6 billion dollars (an annual growth rate of 8.7 percent) for the /General-Purpose Forces/ program next year, which is 40 percent of all allocations for the U.S. Department of Defense. Special attention continues to be devoted to the deployment of new weapons systems and the enhancement of troop readiness. Measures to achieve this include increasing the number of flying hours and training flights, expanding troop participation in exercises and maneuvers, taking steps to improve the personnel training system, improving materiel support for the armed forces and their ammunition supply situation. An important place in the Pentagon's plans continues to be assigned to the training and outfitting of the Rapid Deployment Force and to the strengthening of American forces stationed in Europe. Despite the constantly growing wave of the "anti-missile" movement in Western Europe and in the United States itself, the Reagan Administration, as though challenging public opinion, is going full-speed ahead to finance the production of land-based cruise missiles (KR) and the Pershing II medium-range ballistic missiles. These are designated, as we know, for deployment in a number of nations of Western Europe. The foreign press reports that funds are being allocated in fiscal year 1984 for the purchase of another 120 land-based cruise missiles (including 825.3 million dollars for scientific research and experimental design work and military organizational development) and for 95 Pershing II missiles (455.6 million dollars).

A total of 5.2 billion dollars has been requested for the program to develop the /Air and Sea Troop Transport Forces/, which exceeds the budget for this year by 23.8 percent. In order to enlarge possibilities for the air-lifting of troops large amounts of money are being spent to acquire four C-5B military transport aircraft (1,403,700,000 dollars) and to modernize 24 C-5A aircraft (251.4 million dollars) and 31 KC-135 refueling tankers (950.7 million dollars).

A significant increase is also planned in allocations for the /Military Intelligence, Development of Communications, Surveillance, Monitoring and Control

Systems/ (by 22.2 percent), /Administration and Management/ (by 54.8 percent) and /Centralized Rear Supply and Armaments Repair/ (by 13.1 percent) programs.

In the /special-purpose structure/ of the Defense Department's budget, as the foreign press points out, we also see a significant increase in funds for military research and development reflecting an increase in the work of developing new models of strategic and general-purpose weapons, as well as an attempt by the USA's military leadership to expand the scientific base for future work and to make a "technological breakthrough." A total of 29.6 billion dollars (10.8 percent of all the Defense Department's allocations) has been requested for scientific research and experimental design work for the next fiscal year, which is 29.8 percent more than the amount for this year (Table 2). along with the amounts allocated for programs of strategic weapons research and development, the greatest increase will be in funds spent on prospective technical developments (to 1.2 billion dollars, which is 50.4 percent more than is being spent for these purposes this year) and for programs of scientific research and experimental design work in the field of intelligence and communications (to 3.6 billion dollars, an increase of 31.2 percent). It is planned to allocate 8.8 billion dollars (an annual growth rate of 22.4 percent) for the development of weapons systems for the general-purpose forces. Large amounts continue to be allocated for developing the scientific and technical base and for performing basic research and exploratory work. It is planned to spend 3.5 billion dollars for these purposes in fiscal year 1984 (12 percent of all the outlays for scientific research and experimental design work).

Table 2. Distribution of Total Allocations for the U.S. Department of Defense for Special Purposes (billions of dollars)

(1) Статьи ассигнований	(2) Финансовые годы		
	(3) 1982 (фак- тиче- ски)	(4) 1983 (оцен- ка)	(5) 1984 (про- ект)
Боевая подготовка, содержание личного состава, эксплуатация и ремонт оружия и боевой техники, пенсионное обеспечение, прочие. (6) .	120.1	128.7	141.6
Закупки оружия и боевой техники (7) .	84.1	81.9	94.1
НИОКР (8) . . .	20.1	22.8	29.6
Военное строительство и жилищное обеспечение (9) . .	7.1	7.1	8.8
(10) Всего	211.4	240.5	274.1

Key:

1. Budget item	6. Combat training, living expenses for personnel, operation and repair of weapons and combat equipment, retirement pay, others
2. Fiscal year	7. Purchase of weapons and equipment
3. (actual)	8. NIOKR
4. (estimate)	9. Military development, housing
5. (draft)	10. Total

Allocations for the /purchase of weapons and combat equipment/ will be increased by 14.9 percent in 1984, reaching 94.1 billion dollars. This item will account for approximately 34.3 percent of the Pentagon budget. It is planned to increase the financing of military purchases in subsequent years. We can see from official budget figures that the Pentagon plans to allocate 170 billion dollars for the production of weapons and combat equipment in fiscal year 1988 (2.1-fold more than has been allocated for this year). This will account for almost 40 percent of its budget. The data cited demonstrate that the Reagan Administration is continuing its course of an intensive and extended arms race.

In the distribution of the Pentagon's budget /among the branches of the armed forces/ (Table 3) for fiscal year 1984, there is outstripping growth in allocations for the air forces (to 92.9 billion dollars, an increase of 23.4 percent for the year). This is due primarily to the above-indicated, significant increase in outlays for the development of strategic air forces and intercontinental ballistic missile forces. The amount of money requested for maintaining and outfitting the ground forces will increase by 13.1 percent in 1984; by 6.1 percent for the naval forces. As a result the total amount spent on the air forces will exceed the total amount allocated for the other branches of armed forces, reaching 33.9 percent of the Pentagon's budget. The Navy's specific share of the Defense Department's budget will be reduced to 31.7 percent; that of the ground forces, to 23.9 percent.

Table 3. Distribution of Total Allocations of the U.S. Department of Defense Among the Branches of Armed Forces (billions of dollars)

(1) Виды вооруженных сил	(2) (3)	Финансовые годы		
		1982 (дак- тиче- ский)	(4) (оцен- ка)	(5) (про- ект)
Сухопутные войска (6)	52.2	57.8	65.4	
ВВС . (7)	64.9	75.3	92.9	
ВМС .(8)	68.8	81.9	88.9	
Управления и ведом- ства министерства обороны (9)	25.3	25.5	28.0	
(10) Всего	211.4	210.5	274.1	

Key:

1. Branch of armed forces	6. Ground forces
2. Fiscal year	7. Air forces
3. (actual)	8. Naval forces
4. (estimate)	9. Offices and departments of the Defense Department
5. (draft)	10. Total

It is apparent from reports in the American press that the increase in allocations for this branch of the armed forces is due to an increase in outlays for the development and purchase of weapons and combat equipment, for their operation and repair, for combat training and materiel support for the troops.

It is planned to spend 19.2 billion dollars (an increase of 22.3 percent for the year) for the purchase of weapons for the /ground forces/ in fiscal year 1984. The portion of the budget going to this branch of the armed forces will increase to 29.4 percent (it was 26.8 percent in 1982). More than a fourth of the funds (4.9 billion dollars) will be spent on the production of artillery weapons, small arms and armored equipment. allocations for these purposes will be increased by 5 percent for the year. It is planned to finance the purchase of 720 M1 tanks and spare parts for them (1,757,300,000 dollars), 600 infantry combat vehicles (858.3 million dollars), 130 M988 Sergeant York self-propelled antiaircraft artillery pieces (671.1 million dollars), 112 M109A2 howitzers (82.1 million dollars) and 180 M88A1 repair and evacuation vehicles (142.3 million dollars).

Allocations for the purchase of aircraft for the ground forces continue to grow at outstripping rates. They will amount to 3.5 billion dollars in the next fiscal year (an increase of 39.6 percent compared with 1983 and 76.0 percent over the 1982 level). We can see from foreign press reports that this increase is due in great part to the development of production of the AH-64 fire support helicopters. A total of 1,470,400,000 dollars is being allocated for the acquisition of 112 such aircraft (including spare parts for them) in fiscal year 1984. This is 64.2 percent more than the amount spent for this purpose in the current year. A total of 480.6 million dollars has been requested for the production of 84 UH-60A Black Hawk multi-purpose helicopters, and 344.0 million has been requested for modernizing 36 CH-47 transport helicopters.

Allocations for the purchase of missiles for the U.S. ground forces will increase by 36.2 percent in fiscal year 1984, reaching 3.1 billion dollars according to the proposed budget. More than one third of the funds requested (1,157,200,000 dollars) is designated for manufacturing 525 Patriot anti-aircraft guided missiles. Funds have also been designated for acquiring MLRS (1,551,600,000 dollars), Hellfire anti-tank guided rocket (239.9 million) and Tow (189.2 million dollars) volley-fire rocket systems, Stinger portable anti-aircraft systems (137.8 million dollars) and other equipment.

It is planned to spend 2.3 billion dollars (an increase of 10.0 percent for the year) on the production of ammunition. Other purchases for the ground forces (more than half of which will consist of radioelectronic and communications equipment) will amount to 5.4 billion dollars. It is planned to allocate 2.8 billion dollars for these purposes in 1984 (an increase of 36.1 percent over the figure for this year)[sic].

Allocations for scientific research and experimental design work for the ground forces will be increased by 23.4 percent, reaching 4.8 billion dollars. The American press reports that along with the development of prospective components and assemblies for the anti-missile defense system, there will be a continuation of the development of unmanned aircraft (138.1 million dollars), Patriot anti-aircraft guided missiles (84.6 million dollars), the AH-64 fire support helicopter (28.3 million), the Pershing II guided missile (22.8 million), the UH-60A multipurpose helicopter (3.3 million) and so forth. In all, 1.9 billion dollars will be allocated for the development and improvement of tactical weapons systems for the ground forces (a yearly growth rate of 28.1 percent). Funds allocated to the Department of the Army will increase by 62.4 percent (to 400

million dollars) for prospective technical development projects and by 10.8 percent (to 700 million dollars) for development of the scientific and technical base.

It is planned to allocate 38.9 million dollars for purchasing weapons and combat equipment for the /Air Force/ in fiscal year 1984. The annual increase in funding for this item will reach 38.5 percent, or 10.8 billion dollars. Its portion of the Air Force budget will be increased to 41.9 percent, compared with 36.5 percent in 1982. The Air Force is greatly outstripping the other branches of the armed forces with respect to absolute and relative amounts spent on purchases of weapons and combat equipment. As in previous years the bulk of the funds (more than 58 percent) are designated for acquiring aircraft. Air Force allocations for these purposes will grow by 29.1 percent in fiscal year 1984, reaching 22.7 billion dollars. It is planned to allocate 10.5 billion dollars (an annual growth rate of 22.4 percent) for purchasing combat aircraft. More than nine tenths of this amount is to be spent on the production of 10 B-1B bombers, 48 F-15 fighters (1,960,400,000 dollars) and 120 F-16 fighters (1,962,900,000 dollars). The production of eight KC-10A transport and refueling aircraft will cost an estimated 759.0 million dollars, while 214.8 million dollars will be spent to produce five TR-1 reconnaissance aircraft.

Large sums are being allocated for modernizing the aircraft. These sums are set at 3.2 billion dollars for fiscal year 1984, which is 29.7 percent more than for this year. Around half of the expenditures for this item involve modernizing the B-52 bombers, the C-5 military transport aircraft and the KC-135 refueling aircraft. A sharp increase is planned in funds for purchasing spare parts for the aircraft. This reflects the intent of the U.S. military leaders to increase the number of combat-ready aircraft. A total of 5.1 billion dollars will be spent for these purposes in the next fiscal year. This is an annual growth rate of 45.4 percent and represents 22 percent of all Air Force allocations for the acquisition of aircraft.

Record rates of growth are expected for Air Force allocations for the production of missiles. This is mostly due to the financing of the MX program. According to reports in the foreign press funds for purchasing missiles will be increased by 72.8 percent in 1984, reaching 8.6 billion dollars. Large amounts have been requested for the production of 285 HARM radar countermeasure missiles (185.7 million dollars) and 2,600 Maverick air-to-ground guided missiles (349.8 million dollars), as well as 1,700 Sidewinder guided missiles (105.9 million) and 1,005 Sparrow air-to-air guided missiles (187.7 million dollars).

A total of 7.6 billion dollars is being allocated for other purchases for the Air Force (an annual growth rate of 37.6 percent), including 1.2 billion for the acquisition of ammunition and 1.9 billion for radioelectronic and communications equipment (52.6 and 42.5 percent respectively).

A total of 13.7 billion dollars is specified in the proposed budget for scientific research and experimental design work for the Air Force, which exceeds the amount spent this year by 28.5 percent. These expenditures account for a considerably greater portion of the budget for the Air Force than the budgets for the other branches of armed forces. It will account for 14.7 percent in 1984.

More than 45 percent of all the Defense Department's funds designated for research and development is allocated for the Air Force.

Especially large amounts of money will be spent by the Air Force on programs for the development of strategic weapons. It is planned to spend 6.5 billion dollars (an annual growth rate of 41.4 percent) for these purposes in fiscal year 1984. This is more than 70 percent of all the Pentagon's outlays in this area. A total of 2.6 billion dollars has been requested for the improvement of tactical weapons systems in 1984, and 1.5 billion dollars for reconnaissance and communications systems (an annual growth rate of 24.3 and 8.9 percent respectively). Air Force allocations will increase by 44.5 percent (to 600 million dollars) for prospective technical development projects and by 7.1 percent (to 700 million dollars) for development of the scientific and technical base.

For the Air Force financing is being provided for the development and improvement of E-3A aircraft for the AWACS system (69.1 million dollars), F-15 (117.8 million) and F-16 (107.4 million dollars) tactical fighters, the prospective ATF fighter (162.3 million), the ASAT anti-satellite system (205.6 million), air-based (28.5 million) and ground-based (36.5 million) cruise missiles, the prospective AMRAAM air-to-air missile (188.6 million), the Air Force AFSATCOM satellite communications system (188.6 million), the Defense Department's DSCS strategic satellite communications system (41.0 million), the NAVSTAR satellite navigation system (95.7 million dollars) and others.

The Navy's allocations for purchasing weapons and combat equipment are estimated at 34.7 billion dollars for fiscal year 1984 (39.9 percent of the Navy's budget). They will be reduced by 2.5 percent compared with this year's figure. This is due to changes in the ship-building program. Financing for the construction of two Chester W. Nimitz class nuclear-powered aircraft carriers in 1983 (6.6 billion dollars) was the main factor. It resulted in an abrupt overall increase in allocations. The 1984 program does not call for the construction of these aircraft carriers. A total of 12.7 billion dollars has been requested for the construction and refitting of ships in 1984, which is 21.8 percent less than for this year. Allocations for the ship-building program will have increased by 47.0 percent over those for fiscal year 1982, however. Along with the Ohio class nuclear-powered missile submarines it is planned to finance the construction of three Los Angeles class nuclear-powered submarines (2,042,400,000 dollars), three Ticonderoga class guided missile cruisers outfitted with Aegis anti-aircraft missile systems (3,435,000,000 dollars), four mine sweepers (381.0 million), one LHD1 helicopter-carrying assault ship (1,379,700,000), one LSD41 assault transport ship (509.0 million), three refueling tankers (524.6 million) and a large number of other ships and vessels.

A total of 11.1 billion dollars will be spent for purchasing aircraft for the Navy (an annual growth rate of 8.4 percent). Around one third of the funds is designated for the production of 24 F-14A deck-based fighters (1,065,300,000), 84 F-18 fighters and A-18 assault aircraft (2,536,600,000). Financing is also being provided for the purchase of six deck-based A-6E assault aircraft (216.6 million), 32 AV-8B VTOL or STOL aircraft (908.5 million), eight C-2 deck-based transports (203.2 million), 11 CH-53E heavy helicopters (229.1 million), six E-2C AWACS aircraft (335.2 million), six EA-6B

radioelectronic warfare aircraft (399.6 million), five R-3C coastal patrol aircraft (282.8 million), 12 SH-2F helicopters (116.4 million), 21 SH-60B deck-based helicopters and the Lamps-Mk3 anti-submarine system (505.7 million).

Allocations for the purchase of nuclear missiles for the Navy will cost an estimated 4.0 billion dollars (an annual growth rate of 17.3 percent). According to reports in the foreign press, in addition to the Trident-1 missiles, financing is being provided for the purchase of 230 HARM radar countermeasure missiles (192.9 million dollars), 330 Harpoon (294.3 million), 324 Phoenix (398.4 million), 450 Sidewinder (29.6 million) and 695 Sparrow guided missiles (153.7 million), 1,190 Standard antiaircraft guided missiles (595.7 million), 124 sea-based Tomahawk KR[cruise missiles] (392.8 million) and others.

A total of 5.0 billion dollars has been requested for other purchases for the Navy, including 1.7 billion dollars (20.8 percent) for the acquisition of radio-electronic and communications equipment. It is planned to allocate 1.9 billion dollars for the purchase of weapons and combat equipment for the Marines.

Funds allocated to the Navy for scientific research and experimental design work in fiscal year 1984 are expected to amount to 8.2 billion dollars, which is 34 percent more than for this year. More than half of these funds (4.3 billion dollars) will be spent on the development of tactical weapons systems. Allocations for these purposes will be increased by 18.9 percent for the year. Work continues on the development and improvement of the A-6E aircraft (6.7 million dollars), the AV-8B (118.2 million), the E-2C (54.4 million), the EA-6B (23.8 million), the F-14A (45.7 million), the F-18 (27.2 million) and R-3C aircraft (19.9 million), the CH-53E (32.9 million) and SH-2F (6.4 million) helicopters, the HARM guided missile (11.8 million), the Standard antiaircraft guided missile (40.2 million), the Tomahawk cruise missile (135.7 million), the DDG51 class guided-missile destroyer (127.2 million) and others. It is planned to allocate 1.8 billion dollars for scientific research and experimental design work under programs for development of the Navy's strategic weapons, 0.3 billion dollars for programs in the field of intelligence and communications, 0.2 billion for long-range technical development projects and 0.9 billion dollars for development of the scientific and technical base.

The Defense Department's proposed budget for 1984 reflects the continuing aggressive course being pursued by the USA's military-political leadership toward the realization of a five-year program for building up the armed forces and weaponry for purposes of achieving military superiority over the USSR and other nations of the socialist commonwealth. This budget draft is a blatant demonstration of the fact that the Reagan Administration is rejecting the Soviet Union's proposals for reducing international tensions, reaching agreement on the limitation and reduction of both nuclear and conventional weapons, and is putting its stakes on the arms race, which is destructive to all mankind, on confrontation and balancing on the brink of war.

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FOREIGN MILITARY AFFAIRS

OFFENSIVE WATER-CROSSING OPERATION OF WEST GERMAN MOTORIZED INFANTRY

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 27-31

[Article by Col I. Khramov, candidate of military sciences, docent: "An Offensive by a Motorized Infantry Division of the FRG, Including the Forcing of a Water Barrier"]

[Text] The Bundeswehr command feels that despite the improved technical capabilities for crossing water barriers, they continue to be major obstacles to the movement of troops. This is why in the combat training of the formations, units and subunits, a great deal of attention is devoted to the organization of battles, primarily offensive battles, involving the crossing of the water barriers which abound in many nations of Europe.

The foreign military experts have calculated that a division advancing at a rate of up to 50 kilometers per day within the Central European theater of military operations might encounter five to 10 narrow water barriers (around 30 meters wide) and one or two medium barriers (up to 100 meters wide) on the route, and one wide barrier (more than 100 meters wide) every 3 days. The troops need to be specially trained for crossing them, and preliminary reconnaissance, careful planning, good organization and control are required. The units and subunits must be provided with an adequate quantity of crossing equipment in good time.

Depending upon the combat situation, the nature of the enemy's actions and the availability of crossing equipment, the Bundeswehr command feels that a water barrier can be crossed from the march or with planned (preliminary) preparation. The former method is considered to be the main one. It consists in rapidly approaching the water barrier on a broad front, overcoming the barrier without delay and immediately developing the offensive in depth on the opposite bank. It is recommended that this plan be used during an offensive and during pursuit of the enemy, when the enemy's defense on the opposite bank has been poorly prepared or when the attacking units and formations have an adequate quantity of amphibious equipment, landing and pontoon-bridge equipment.

Assault crossings with planned preparation are employed in the following situations: when the enemy has created a strong defense at the water barrier, after an unsuccessful attempt to cross the stream, and when the offensive is renewed directly from the water barrier. The operations are carefully worked out. The

division's personnel and equipment must be regrouped before they are begun, the combat units and crossing equipment are brought up to the crossing areas and reliable fire support is provided for the troops.

It is felt that the crossing of a water barrier should always take the enemy by surprise, and it should therefore be organized on a broad front with simultaneous strikes carried out with available weapons on various sectors. In order to mislead the enemy it is recommended that feints be made, that dummy crossings be created, that smoke be extensively used and that the crossing of rivers be carried out at night and in poor weather.

According to information published in the foreign press the modern motorized infantry division possesses a large quantity of crossing equipment. It has self-propelled bridge trains, assault boats, Biber tank bridgelayers, up to 250 tracked and wheeled, amphibious armored personnel carriers and around 200 Marder infantry combat vehicles. A division advancing on the main axis of an army corps may be reinforced with a pontoon battalion, one or two of a battalion's amphibious engineer companies and other engineer subunits.

The West German military press states that a motorized infantry division ordinarily crosses water barriers /from the march/, reducing the pace of the offensive only slightly and with minimal concentration of troops. The crossing of a water barrier is usually a part of a division's combat mission for the offensive and may be included in its immediate or subsequent mission, depending upon the location of the barrier.

The crossing of a water barrier is ordinarily planned simultaneously with the organization of the offensive. The division staff works out a special plan based on the overall concept, which ordinarily defines the organization of the division's battle formation, the missions for the forward and support units and subunits, the crossing zone and specific points, routes for approaching the water barrier and maneuvering, the time and the procedure for crossing the barrier.

According to the West German command the battle formation of a motorized infantry division in an offensive involving the crossing of a water barrier from the march would ordinarily be in two echelons. A forward detachment (PO) consisting of a reinforced motorized infantry (or tank) battalion would be designated and assigned the mission of rapidly approaching the water barrier, capturing existing crossings and suitable sections of the river on the axis of the focus of the division's main effort. The most battleworthy and the most completely manned and equipped units and subunits are assigned to the first echelon. It may include motorized infantry and tank battalions reinforced with an adequate quantity of weapons and crossing equipment. The first echelon's mission would ordinarily consist in destroying the enemy on the approaches to the water barrier, approaching the river, crossing it without halting and capturing a bridgehead on the opposite bank. The division's second echelon (ordinarily a tank brigade) and the other combat support units would proceed to the water barrier in a state of readiness to cross it and develop the success of the attack carried out by units of the first echelon.

The foreign press notes that the crossing of a water barrier from the march must be accomplished on the entire zone of the division's offensive, without additional preparation of the troops departure areas and without waiting for the

approach and concentration of the main forces. In such a case the units are assigned crossing sectors in advance, one sector 3-5 kilometers wide for each battalion in the first echelon. A sector may include landing points, bridge and ferry crossings and fording points for wheeled vehicles and tanks (see Figure). The number depends upon the battle concept, the tactical situation, the pace set for the crossing, the nature of the water barrier and the availability of crossing equipment. In exercises conducted in recent years, for example, the following have ordinarily been set up in the zone of a motorized infantry division's advance (up to 30 kilometers wide): 10 assault crossing points, two for each motorized infantry battalion in the first echelon), as many as 10 ferrying points, fording points (five or six for each brigade in the first echelon), one or two bridge-crossing points (ordinarily one bridge for a brigade) and one or two dummy crossing or feinting points. More than 20 different points have been set up all.

Cross-country routes from the starting point to each crossing point are designated for the division's subunits for moving to the water barrier in the zone of the offensive, as well as a division supply route and one road for each brigade in the first echelon, and one or two lateral roads for the maneuvering of units and subunits on the front.

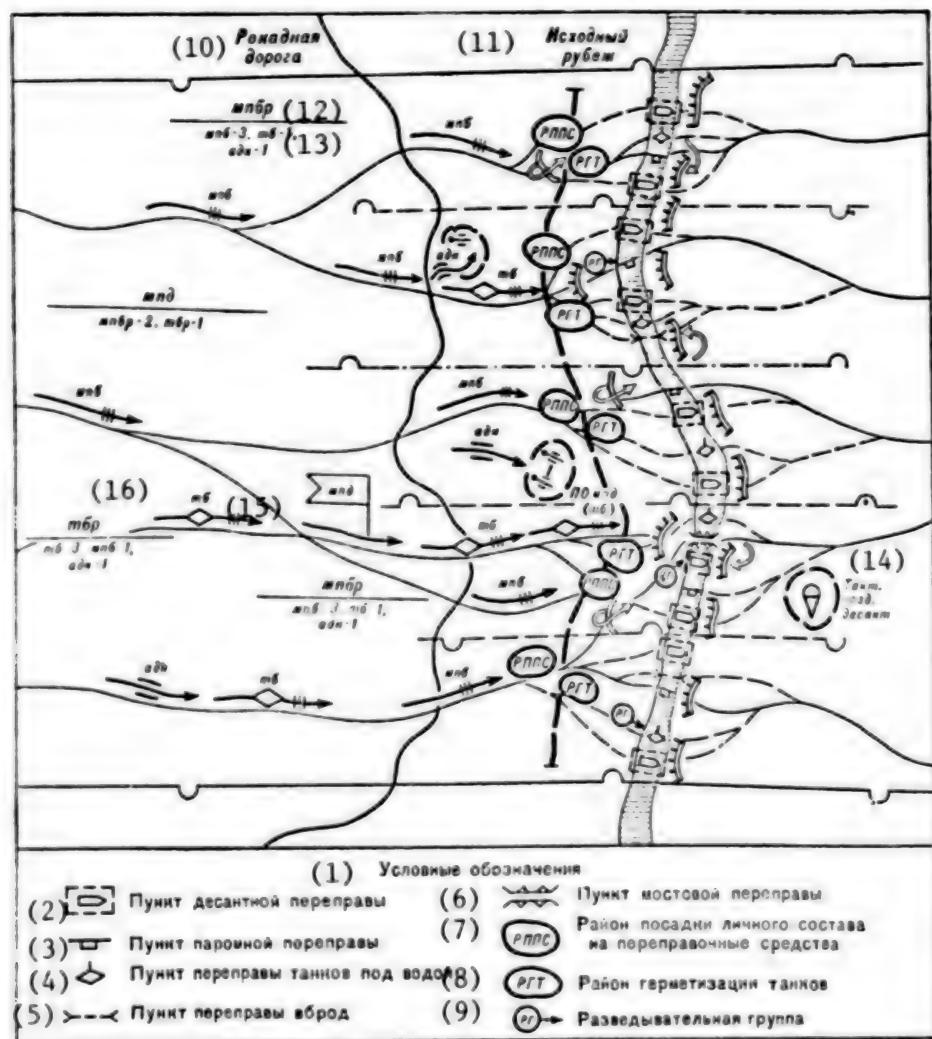
The Bundeswehr's military experts believe that success in the crossing of a water barrier from the march will depend to a significant extent on the degree of surprise achieved, the speed with which the division's units reach the barrier, how fast the river is crossed on a broad front and enemy positions are captured on the opposite bank.

The crossing of a water barrier from the march in such cases is ordinarily accomplished in the following sequence: the organization and performance of reconnaissance, the approach of the forward detachment and units of the division's first echelon, final preparation of the landing and crossing equipment and the troops for the crossing, the landing of airborne tactical groups, the crossing of the water barrier by battalions of the first echelon and the capturing of bridgeheads on the opposite bank, the erection of ferry and bridge crossings and preparation of the routes for the crossing of tanks under water, the crossing of the river by the second echelon and the division's reserves, and the development of the offensive in depth.

The West German military experts stress the fact that a division will ordinarily move up to the water barrier in that grouping in which it has been conducting the offensive. The reconnaissance patrols (or groups) operating ahead of its battle formation reconnoiter the water barrier, establish the make-up of the enemy's defending forces, especially on the opposite bank, and the existence of fording sites and convenient sectors for organizing the airborne landings, ferry and bridge crossings, and so forth. The commander refines his decision for crossing the water barrier on the basis of this information, adjusts the crossing plan and specifies the missions for the units and subunits.

As the division approaches the stream the forward detachment swiftly advances to the barrier in order to capture existing crossings and sectors convenient for crossing the stream, and if the situation permits, also a bridgehead on the opposite bank. A tactical airborne group (as large as a reinforced motorized

infantry battalion) may be landed (or dropped) during this time on the opposite bank for purposes of capturing a bridgehead or existing crossings and retaining them until the main forces approach, containing enemy operations, and so forth.



The Crossing of a Water Barrier From the March by a Motorized Infantry Division of the FRG

Key:

1. Legend	8. Tank sealing area
2. Assault crossing point	9. Reconnaissance group
3. Ferry crossing point	10. Lateral road
4. Underwater tank crossing point	11. Starting point
5. Fording point	12. Motorized infantry brigade
6. Bridge crossing point	13. Motorized infantry battalion, tank battalion, artillery battalion
7. Area where personnel board the crossing equipment	14. Tactical airborne group 15. Bridge battalion 16. Engineer bridge brigade

At the same time first echelon units are attacking the enemy with determined operations, frustrating the enemy's attempts to fortify itself on the approaches to the river and moving to a starting line 3-6 kilometers from the water's edge.

To carry out a successful offensive it is recommended that the marching columns be headed by first echelon tanks and that the organic and attached artillery travel behind the forward subunits. The engineer subunits with the landing and crossing equipment designated for the first echelon units ordinarily move up to the water barrier behind those units in a state of readiness to support the crossing of the forward subunits, which cross the barrier first. The bridge trains follow the first echelon units.

Tactical and army aviation and the field artillery provide fire support for the crossing. The immediate artillery preparation, which may last 25-30 minutes, begins when the forward battalions of the first echelon reach a line 5-8 kilometers from the river. During this period the motorized infantry battalions of the first echelon approach the river on the entire front of the division's advance and begin crossing the water barrier. Subunits for destroying what is left of the enemy cross over first in amphibious armored personnel carriers, along with groups of forward artillery observers with communications equipment, tactical aviation control teams and a communications and interaction group of the division's second echelon. The second echelons of the brigades then cross over. Their mission is to expand the bridgehead and support the erection of the bridges. The second echelon and the division reserves then cross the barrier by bridge or ferry, and sometimes on assault landing equipment.

If the situation permits, tanks in the first echelon cross the water barrier on the bottom and operate jointly with the motorized infantry battalions. When this is not possible they are hauled over on ferries (see colored insert [inserts not reproduced]).

The artillery is moved across the water on ferries or by bridge, as well as on amphibious vehicles with the corresponding echelons.

After the forward units capture a bridgehead on the opposite bank of the river, the engineer subunits clear away mines and barriers, erect bridges and set up approach routes to assure the successful advance of the division units.

After crossing the river the first echelon, with artillery fire support, strikes by tactical and army aviation and reliable engineer support, rapidly advance into the enemy's defensive depth and capture enemy positions on the opposite bank for purposes of expanding the bridgehead and creating the conditions necessary for maneuvering the division units and reducing their vulnerability to enemy fire and counterattacks. When the crossing of the barrier is accompanied by the landing of a tactical airborne group, the missions involved in capturing enemy positions on the opposite bank are ordinarily distributed among the first echelon subunits and the airborne landing force.

After capturing areas on the opposite bank the first echelon subunits, together with the tactical airborne landing group, attempt to occupy tactically advantageous areas as rapidly as possible, thereby preventing the enemy from regrouping its forces and organizing a counterattack. During this period they should operate swiftly and take advantage of artillery fire and strikes by fire

support planes and helicopters to continue developing the offensive on the opposite bank until a bridgehead has been captured and reinforced.

The second echelon crosses to the opposite bank to develop the success achieved in advancing into the enemy's defensive depth. The division units then pursue the offensive in the conventional manner.

According to foreign press reports the crossing of a water barrier /with planned preparation/ is ordinarily accomplished in the following sequence: detailed planning, preparation and concentration of the division units, the approach to the water barrier and deployment in battle formation for the crossing (or a regrouping if the division is defending at the water barrier), overcoming the water barrier and a build-up of personnel and equipment at the bridgehead.

The crossing of a river begins with the departure of the first amphibious armored personnel carriers and other landing and crossing equipment with the personnel of the forward motorized infantry battalions from the dumping point on the starting bank and is completed with the capture and reinforcement of a bridgehead on the opposite bank. It is also supported with air strikes and fire from artillery and other weapons.

When a division moves up to a water barrier under the cover of troops occupying a defense on the barrier, it is recommended that the artillery preparation be started when the first echelon units reach a line 5-8 kilometers from the river, as is done for crossing a water barrier from the march. A tactical airborne assault group from the division may be landed following the artillery preparation. Subsequent combat operations and the crossing of the water barrier by the division units are basically executed in the same manner as for crossing a water barrier from the march.

On the whole, the Bundeswehr command believes that success in the crossing of a water barrier depends greatly upon timely organization and determined actions by all the division's units and subunits, as well as reliable and thorough support.

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FOREIGN MILITARY AFFAIRS

RESUPPLYING U.S. GROUND FORCES WITH POL

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 31-33

[Article by Eng-Col I. Danil'chenko and Eng-Capt I. Baklagin: "The POL Pipeline and Depot Service Battalion of the U.S. Ground Forces"]

[Text] In its study of possibilities for the conduct of highly mobile combat operations under modern conditions by the ground forces, the American command notes that all-round and complete support for formations, units and subunits with all types of supplies, including POL, is an extremely important condition for the achievement of success in a battle. The foreign press reports that in the exercises code-named Reforger-10, which were conducted in the fall of 1978, the troops were issued around 2,500 tons of fuel in the field. U.S. military experts stress the fact that the quantity of POL required for the support of combat operations will constantly grow as the forces become more completely equipped with modern tracked, wheeled and other equipment. Studies are therefore being carried out in the USA, which focus mainly on the improvement of the organizational structure of the POL supply subunits, the development of modern means of delivery, special equipment and gear, and on the outfitting of the subunits with these.

A great deal of attention is also being devoted to the development of pipelines, especially in likely theaters of military operations. The American command considers this to be one way to resolve the problem of delivering large quantities of POL to the troops. The foreign press reports that a network of permanent pipelines has already been built in the USA and a number of Western European nations, which can be enlarged with sectional field pipelines if necessary. In accordance with regulations adopted in the U.S. ground forces these pipelines are laid and repaired and POL depots are built along the line by construction engineer subunits, while maintenance subunits service them.

The foreign press states that the fuel pipeline and depot service battalion is one of the main subunits performing the missions involved in providing the troops with POL. It is subordinate to a POL supply group--one of the rear support agencies responsible for building and operating sectional field pipelines, setting up POL receiving points at transshipment sites (ports, railway stations and so forth) and monitoring the distribution of POL. A battalion can service a system of 100mm, 150mm and 200mm pipelines with a total length of up to 800 kilometers, depending upon the availability of permanent pipelines, railways and roads, and deliver fuel through these pipelines to the rear areas of the army corps.

Such a battalion includes a staff, an HQ company and as many as eight pipeline and POL depot service companies.

The /staff/ plans the delivery of fuel through the pipelines in accordance with instructions from the POL supply group, determines administrative and supply matters and sets up control over the fuel quality.

The /HQ company/ supports the work of the staff, organizes the training of personnel, recording and control of the fuel quality and performs supply, engineer support and other tasks. It includes a rigging platoon designated for performing loading and unloading operations at the fuel offloading ports.

The /pipeline and POL depot service company/ operates a section of the sectional field pipelines and fuel depots which are a part of the system serviced by the battalion. It provides for the pumping of fuel over a distance of around 100 kilometers, the storage of 160,000 cubic meters of fuel at a depot (consisting of 2-4 tank groups), the functioning of the POL supply point from which the fuel is delivered to the units and subunits executing a march, and the delivery of a limited quantity of fuel to units and subunits located near the pipeline and lacking their own special transport equipment.

The company includes an administration, an operations control section, a pipeline service platoon, a POL depot service platoon and a repair section.

The company administration directs the production-management operations, provides material and technical support for its subunits, compiles and submits to the battalion command daily summaries of production operations, as well as recommendations for materials and equipment and records of these.

The operations control section plans, coordinates and controls all the technical operations involved in the storage, pumping and issuing of the fuel. It organizes the dispatching service, monitors the fuel quality and takes on the operation of a pipeline and four pumping stations built by the construction engineer subunits. A section has a quarter-ton vehicle, laboratory equipment for monitoring the fuel quality, AN/VSC-2, AN/GGC-3 and AN/PCC-1 teletypes and AN/VRC-46 and AN/GRA-39 radios.

The pipeline service platoon (around 60 men) operates a section of sectional field pipeline around 100 kilometers long and four pumping stations. It includes an administration, four pipeline service sections and one technical servicing and repair section.

The platoon administration coordinates the operation of the pumping stations, organizes their technical servicing and keeps records. It has a quarter-ton vehicle, AN/VRC-46 and AN/PRC-77 radios, an AN/PGC-1 teletype and an SB-993/GT switchboard.

A pipeline service section of 6-8 men looks after the functioning of one pumping station (as many as four pumping units, sand traps, filter-separators, electric power generators and other equipment) and an adjacent section of the pipeline around 25 kilometers long. It also patrols the pipeline for purposes of

protecting it and promptly detecting any damage. It is outfitted with a 1.25-ton vehicle, AN/VRC-46 and AN/PRC-77 radios and an AN/PGC-1 teletype.

The technical servicing and repair section performs all types of technical servicing of the pumping stations, the pipelines and auxiliary equipment. It has a vehicle repair shop set up on two 2.5-ton motor vehicles, a 1.25-ton vehicle and a radio.

The POL depot service platoon (64 men) performs the tasks of receiving, storing, issuing and delivering POL. It includes an administration, as well as four sections: storage and issue, operation of the storage tank system (two sections), delivery and issuing.

The administration performs general supervision and coordination of the sections, monitors the quality of the fuel and performs loading and unloading operations. It has an M54 5-ton vehicle, a forklift with a lifting capacity of 5 tons, an M38 quarter-ton vehicle, a set of laboratory equipment for monitoring the POL quality, an AN/PGC-1 teletype and an SB-993/GT switchboard.

The POL storage and issuing section is charged with the storage of the fuel supply and with setting up the POL receiving and issuing point and the refueling station. In addition to these, it has rubberized fabric tanks for storing the fuel supply and two M857 and M131A5 or M131A5C tankers with a capacity of 19 cubic meters each. The POL receiving and issuing point is designed for simultaneously filling six tankers, two rubberized fabric tanks with a capacity of 1.9 cubic meters each and six barrels (or cans). It includes six rubberized fabric tanks with a capacity of 38 cubic meters each, two pumps which can pump 80 cubic meters per hour, two filter-separators and distribution devices. The refueling station is a mobile system designed mainly for filling barrels and other containers. It consists of two or three rubberized fabric containers with a capacity of 1.9 cubic meters each, a pumping unit which pumps 22 cubic meters of POL per hour, rubberized fabric section sleeves and two distributing units.

The tank yard service section issues POL from two tank yards with 1-5 permanent, industrially produced tanks with a capacity of 8,000 cubic meters each (a combined capacity of around 80,000 cubic meters), semi-permanent fuel depots consisting of sectional steel tanks or field depots made up of rubberized fabric tanks. A section has TOE pumps capable of pumping 100-200 cubic meters per hour, which pump the fuel from the tanks into the pipelines.

In addition, the section personnel are also trained to service fuel depots consisting of industrially produced steel tanks with floating roofs, with a capacity of 8,000-16,000 cubic meters each, sectional steel tanks with capacities of 16, 24, 40, 160, 480 and 1,600 cubic meters, underground tanks (ordinarily of reinforced concrete) with a protective shell, rubberized fabric tanks with a capacity of up to 4,000 cubic meters, and auxiliary intra-depot and booster pumping stations. A section is equipped with motor vehicles with various hauling capacities, special equipment, communications equipment and so forth.

The POL delivery and issuing section delivers the fuel to units and subunits located along the pipeline and fuels the motor transport equipment of its company and other subunits which lack fuel delivery facilities. A section has four

"tank-pump" units mounted on M41 or M54 5-ton trucks, a tank truck with a capacity of 19 cubic meters and a rubberized fabric pipeline 4 kilometers long.

The 'repair section' (more than 20 men) is designated for the technical servicing and repair of the company's weapons and equipment. It includes a 5-ton vehicle for providing technical assistance, a compressor, welding equipment, sets of pipe-fitting tools, spare parts, components and assemblies.

It is the opinion of U.S. military experts that the company's capabilities for combatting sabotage by enemy groups are extremely limited. Special subunits may be charged with protecting the tank yard, the pumping stations, the pipelines and other technical facilities, and additional forces may be assigned to the company when necessary. For repelling enemy attacks it is armed with M203 grenade launchers, M60 light machine-guns and M16A1 automatic rifles.

As a result of the U.S. military-political leadership's desire to prepare the armed forces for conducting combat operations anywhere on the planet, the American military press has recently carried articles demonstrating the need to enhance the capabilities of the subunits for laying and using sectional pipeline systems. Specific measures are being worked out for this purpose, which provide for outfitting the subunits with more productive equipment and machinery, creating special training centers for the specialists, and so forth. The Western experts believe that the implementation of these plans will make it possible to assure that the troops have an uninterrupted supply of essential POL.

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FOREIGN MILITARY AFFAIRS

IMPROVEMENT OF TANK DEFENSE DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 33-39

[Article by Eng-Lt Col V. Nesterenko: "Improving Tank Defense"]

[Text] As the main striking force of the ground forces armored equipment has a leading place in the development of conventional weapons in the capitalist nations. In addition to the USA, Great Britain, the FRG and France, such nations as Israel, Sweden and Japan are developing their own armored equipment, primarily tanks.

The rapid development of modern anti-tank weapons in the 1960's and 1970's, mainly anti-tank missile systems (PTRK) which demonstrated a sufficiently high degree of effectiveness during the armed conflicts in the Near East, has forced foreign experts in the area of tank-building to reconsider their views on the relative importance of the tank's basic fighting features. The improvement of tank guns, ammunition for them and fire-control systems for the basic combat tanks, one of the main functions of which the foreign military experts consider to be that of combatting enemy tanks, has also contributed greatly to this. An effort was made to compensate for inadequate defense capabilities in tanks of the first and second postwar generations (especially in the FRG and France) with a high level of mobility, for example, whereas the importance of the basic combat features are listed in a new order--fire power-defense-mobility--in the third generation models (Leopard-2, M1 Abrams and Challenger).

The foreign military press now usually considers a tank's defense together with a number of other measures aimed at assuring its survivability on the battlefield. Specifically, the West German experts consider the following: reducing the features making it possible to detect tanks (silhouette, sound, electromagnetic and infrared identification features) and increasing its camouflage capabilities; outfitting it with automatic sensors which warn of the enemy's use of active reconnaissance equipment and means of directing guided ammunition; reducing the probability of a shell hitting the tank (reducing its silhouette and increasing its mobility); seeking optimal designs and component arrangements to provide maximum protection for the more important systems, and improving repairability. In foreign publications the term "defense" in the above-described order of the tank's basic fighting features is therefore pushed aside by the term "survivability." The foreign experts define this as the tank's capability for preserving part or all of its combat capability after being struck

by enemy fire and its adaptation for the rapid restoration of this capability in field conditions. They also mean by defense a certain level of protection for the tank's crew and vitally important systems against fire from anti-tank weapons (artillery, tanks, anti-tank missile systems, anti-tank hand grenades, mines and the destructive effects of weapons of mass destruction [OMP]).

The direct influence of a tank's level of defense upon its survivability accounts for the great attention devoted to this matter in the capitalist nations in the modernization of existing models and the development of new models. The tank's defense is being improved mainly by enhancing the effectiveness of the armored protection itself, by improving the protection of the ammunition load, by providing good protection against fires and by developing more effective means of protecting the tank crew against weapons of mass destruction. In addition, attempts are being made abroad to reduce tank dimensions, especially the height, for purposes of reducing the likelihood of shells striking the tanks (Figure 1).

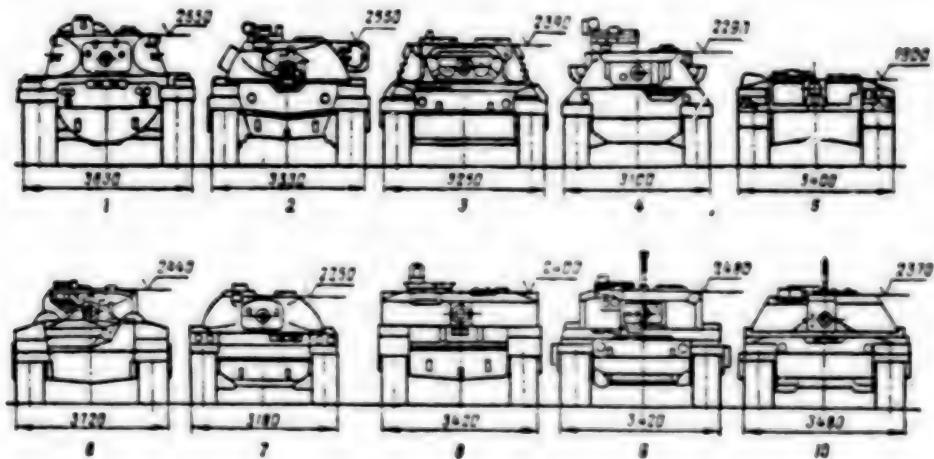


Figure 1. Frontal views of the main fighting tanks of the capitalist nations:
1. M60A1 (USA); 2. Chieftain (Great Britain); 3. Leopard-1A1 (FRG); 4. AMX-30 (France); 5. STRV-103B (Sweden); 6. Merkava (Israel); 7. "74" (Japan); 8. Challenger (Great Britain); 9. Leopard-2 (FRG); 10. M1 Abrams (USA)

The foreign experts consider the task of enhancing the effectiveness of the armored defense to be a complex and multidimensional one. The problem is made more difficult by the fact that the destructive effects of modern anti-tank weapons (armor-piercing shells, hollow-charge ammunition and mines) are based on various physical principles making it necessary for the armor on the tank hull and turret to have diversified protective features.

Increasing the thickness and the tilt angle of the armored parts has traditionally been the method used for increasing the armored defense, along with improving the steel itself. This task is accomplished with a differentiated approach and attempts are made to make the frontal parts and the turret the most shell-proof, since the most dangerous arc of fire for a tank is considered to lie within a range of ± 30 degrees from its longitudinal axis. For example, the

foreign experts estimate that around 45 percent of all hits on tanks are on the turret and up to 45 percent are on the upper frontal part of the hull. Along with increasing the thickness and the tilt angle of the frontal armor to make it more shell-proof, the foreign experts therefore devote a great deal of attention to reducing the area of armor weakened by notching or indentations. The size of the firing slits and the width of the mantlets, which are sunk into and welded to the turret body, is significantly reduced in the M1 Abrams and the Leopard-2 tanks, for example. It is noted that these steps have significantly enhanced the protection of the weakest part of the frontal armor at the spot where the weapon is mounted.

The weakened areas are also being reduced by placing instruments for the fire-control system and the viewing devices on the turret roof or on armored plates with a large tilt angle, by combining the frontal projections of several weakened areas into one, by making the commander's cupola shorter, by using armored covers for protecting expensive instruments in the fire-control system from fragments and bullets, and with other design modifications. These methods of making the frontal armor more shell-proof were employed in part by the foreign experts for creating the first and second postwar generations of tanks (see table) and were fully applied in the third generation of tanks.

(1) Наименование (страна разработчика, год принятия на вооружение)	Максимальная толщина брони, мм		(3) Максимальный угол наклона лобовой брони корпуса, град
	(2) башни	(5) корпуса	
(6) Танки первого поколения			
M47 (США, 1952) (7)	110	110	60
M48 (США, 1954) (8)	110	110	60
«Центурион» Mk7 (Великобритания, 1954) (9)	120	78	50
(10) Танки второго поколения			
AMX-30 (Франция, 1963) (11)	-	70	75
«Леопард-1» (ФРГ, 1963) (12)	100	70	60
M60A1 (США, 1962) (13)	255	120	70
«Чифтэн» (Великобритания, 1963) (14)	150	120	60

Armor Protection of Certain Foreign Tanks

KEY:

1. Tank designator (developing nation, year placed into service)
2. Maximum armor thickness (mm)
3. Maximum tilt angle of frontal hull armor (degrees)
4. Turret
5. Hull
6. First generation of tanks
7. M47 (USA, 1952)
8. M48 (USA, 1954)
9. Centurion (Great Britain, 1954)
10. Second generation of tanks
11. AMX-30 (France, 1963)
12. Leopard-1 (FRG, 1963)
13. M60A1 (USA, 1962)
14. Chieftain (Great Britain, 1963)

Giving the sides of the tank hulls adequate resistance to shells is the second most important problem for making the armored defense more effective. The foreign experts estimate that more than half of the total number of tank hits fall on the upper part, with approximately twice as many striking the top part of sides as strike the lower. The problem is also complicated by the fact that the tank's weight is greatly increased by increasing the thickness of the armor plates on the side projections. Side skirting plates were therefore installed on the British Centurion and Chieftain tanks, and somewhat later on all the modernized and new tanks, to provide more effective protection for the hull sides against anti-tank ammunition, mainly hollow-charge ammunition. Located some distance from the sides of the hull, they not only cause the hollow-charge ammunition to explode prematurely, which significantly reduces its armor-piercing effect upon the main armor, but also provides a certain amount of protection for the tracks and suspension.

In the development of the tank hull's armored structure a great deal of attention is also given to providing it with adequate protection against anti-tank mines, mainly with special design measures making the tank bottom more rigid. The foreign experts note that the second-generation tanks such as the French AMX-30 and the British Chieftain, as well as the third generation, have an adequate level of this kind of protection (against mines exploding beneath the tracks). For example, the foreign military press cites evidence that the new M1 Abrams and Leopard-2 tanks retain their combat capability after an anti-tank mine has exploded beneath them.

The hulls and turrets of the first generation of tanks and most tanks of the second generation are made of solid steel armor. Due to the improvement of modern anti-tank weapons, however, as a result of which their armor-piercing capability has grown significantly (sub-caliber shells fired from a tank gun can pierce armor up to 300 mm thick, and the hollow-charge warheads of anti-tank guided missiles can penetrate armor 500-700 mm thick), and due to the fact that their effect is based on various physical principles, it has become extremely difficult to make the armor protection more effective simply by improving the strength of the armor. Experts of the USA, Great Britain and the FRG have therefore begun seeking new armor materials, including nonmetallic materials, and more effective protective armor components than the solid armor.

At the beginning of the 1970's separated (shielding) armor began to be used to provide greater protection for the frontal part of the hull and the turret of the main combat tanks. Side hull armor with skirting plates is an example of this. The development of turrets with separated armor was the next stage. They were installed on the West German modernized Leopard-1A3 and Leopard-1A4 tanks. The same armor design was used in the Israeli Merkava tank (Figure 3 [This and subsequent figures not reproduced]). That country's experts devoted their main attention to providing the crew with a high level of protection in the designing of this tank. The frontal hull armor and that of the low turret are of the separated design. In addition, the engine and transmission, which are mounted in the front part of the hull, provide the crew with additional protection against frontal fire. The shielding design is also employed on the top, behind and on the sides of the fighting compartment. Some of the space between the shields and the main armor is used for fuel containers. This provides additional protection against hollow-charge ammunition.

The development of a fundamentally new armor design, called the "chobham," was completed in Great Britain in 1976. According to foreign press reports it is a multi-layer armor consisting of high-strength steel, aluminum and a ceramic material similar to boron carbide. The British experts believe that this armor will protect the Challenger tank against Swingfire anti-tank guided missile.

Multi-layer armor, which consists of several sheets of armor steel and other materials, has also been developed in the USA and the FRG and has been used in the M1 Abrams and Leopard-2 tanks.

Lighter aluminum alloys are also being extensively used in addition to the high-strength steel. Armor of an aluminum alloy weighs only 36 percent as much as steel armor of the same thickness, but according to the foreign experts it provides 60 percent of the latter's protection. Aluminum armor was previously used primarily in light armored equipment. In 1980, however, the British Vickers firm developed the first experimental model of the Valiant tank for sale to other nations. It also has the so-called "adapted" armor. Its hull and turret, made of aluminum alloy, are reinforced with "chobham" armor in the front and on the sides (Figure 4). According to the foreign experts this system offers the greatest possibilities for optimizing the armored protection of the tank as a whole. It makes it possible to rapidly replace damaged sections of armor, and to produce and operate tanks in peacetime without additional protection.

The latest foreign scientific-technical and technological achievements in the area of protective armor have been applied in the third generation of tanks, which are significantly superior in this respect to models previously produced. The provision of adequate protection has now increased the combat weight of these vehicles to more than 50 tons.

Given the present demands the foreign experts estimate that armored protection for the hull and turret account for more than 50 percent of the total tank weight. The reinforcement of the frontal armor, together with the increased weight of the armament, have also led to a clearly defined increase in the weight of the hull nose. This has had a negative effect on their travel dynamics, especially when crossing obstacles. The increased weight of the front part of the turret is making it necessary to make the recess more extensive to balance the turret vertically. This, in turn, is increasing the total armor area. The weight of the turret is increasing considerably as a result. It was around 10 tons for the Leopard-1 tank but has been increased to 17 tons for the Leopard-2 and to 19 tons for the M1 Abrams.

In the anti-tank weapons being designed for adoption at the end of the 1980's, along with increasing the armor-piercing capability, it is planned to considerably increase the quantity of systems and ammunition capable of destroying a tank from above (the experimental Swedish PBS-56 Bill and the American Tank Breaker anti-tank missile systems, the magazine-type XM836 SADARM and the guided M712 Copperhead artillery shells and guided and free-flight areal bombs and rockets). As a result increased demands are being made of the level of protection for tanks of the 1990's, especially against damage from above, since the hull and turret roof is the weakest element.

In the development of future tanks some foreign experts have recently suggested abandoning the so-called classical tank arrangement, in which the forward part of the hull is occupied by the driving compartment, the middle section holds the fighting compartment, where the guns are mounted in a rotating turret, and the motor and transmission compartment is in the rear section. All of the basic tanks of the three postwar generations in the leading capitalist states have been designed with this arrangement.

The experts believe that with the increasing demands being made of the level of protection, the development of a future tank retaining the classical arrangement while maintaining its combat weight and width of travel clearance within the prescribed limits (no more than 60 tons and 3.54 meters respectively) and simultaneously resolving problems of handling ability and cross-country performance, will be an extremely difficult engineering and technical task, one which will also involve a significant increase in the cost of the series-produced model.

In the opinion of many foreign experts the armored protection of future tanks can be significantly increased with existing weight and size limitations only by reducing the size of the armored spaces with a basic change in overall arrangement. This would involve first of all abandoning the double-tier housing of the crew for a single-tier arrangement, in which all of the crew members would be located at approximately the same level. This would make it possible to reduce the height of the tank's fighting compartment by approximately 30 percent. Secondly, it would involve reducing the size of the crew to three men by equipping the tank with an adequately reliable automatic loading system. In the optimal design the maximum armored area would be limited to a compact space of around 4 cubic meters, the space required for housing three crew members. The foreign military experts believe that a small silhouette, optimal fighting weight, adequate survivability in combat conditions (primarily through the use of powerful armor) and an acceptable cost could be achieved as a result.

The Swedish STRV-103 turretless tank is an example of a significant deviation from the classical arrangement (Figure 5). The tank silhouette and the essential armored space have been significantly reduced by mounting the gun rigidly in the hull, automatic loading of the weapons has been provided and the crew has been reduced to three men. This design is not considered to be a good one, however, because of a number of shortcomings. The main shortcoming is the impossibility of conducting aimed fire on the move. The foreign experts have not given up their attempts to improve this design arrangement, however. Specifically, an experimental tank model was developed in the FRG at the end of the 1970's, in which an attempt was made to compensate to some degree for shortcomings inherent in the turretless design by installing two guns in the hull (that is, by doubling its fire power) (Figure 6).

In their development work on future tanks the foreign experts have turned more and more in recent years to the arrangement with extended armament. In this design the entire crew is housed at a single level in the hull and the armament is placed outside and can be fully rotated. The engine and transmission unit is in the front part of the hull and provides additional protection for the crew. There are two seats behind the driver for the commander and the gunner. The gun is automatically loaded and remote-controlled.

The foreign experts estimate that this design makes it possible to reduce the width by approximately 30 percent and the forward projection of the fighting compartment by 50 percent, and to install more powerful armor.

The frontal protection is improved by almost 2-fold with the same armor weight. The extra permissible weight can be used for reinforcing the sides or, more importantly, the hull roof in the area of the fighting compartment. A tank design with the armament placed above the hull is being developed in the FRG and Sweden. The most significant shortcoming of these tanks is the impossibility of manually loading the guns in case the automatic system breaks down. The proponents of this concept, however, believe that the modern level of development of equipment and technology is adequate for designing an automatic loading system with a high level of reliability.

Judging from reports in the foreign military press some of the foreign experts are not abandoning attempts to use the classical arrangement for developing future tanks. They propose reducing the area of the frontal protection primarily by placing the crew lower in the fighting compartment and using a low turret. Proponents of the tanks with turrets, however, are placing their main hopes on continued progress in the development of armored protective elements, specifically on the creation of so-called "active" armor. This was first employed for enhancing the armor protection of the Centurion M48 (Figure 7) and M60 tanks used by Israel in the latest aggression against Lebanon.

This armor consists of a number of layers installed over the main armor of the hull and turret in the area exposed to the greatest danger from fire. Each layer consists of two metal plates with a layer of explosive between them, which is triggered by a hollow-charge jet but is invulnerable to bullets and fragments. The foreign experts estimate that the effect of a hollow-charge jet is cut almost in half by the explosion of this layer. It is noted that the "active" armor essentially incorporates the "adapted" armor concept and has all the above-mentioned advantages. The main shortcoming is the possibility of injury to unprotected personnel and damage to unprotected equipment on the tank near the exploding lining. The Western press notes that the "active" armor may be designed in various ways, including its inclusion into multi-layer armor.

In the opinion of the foreign experts improving protection of the tank's ammunition load is also one of the important areas for enhancing its protection and survivability in general, since the detonation of its ammunition load by a direct hit on the ammunition store (primarily the ignition and explosion of live charges) will destroy the crew and put the tank out of action once and for all. The ammunition load on the tanks are therefore ordinarily placed in the best-protected areas of the fighting compartment. Additional design measures are also planned for reducing the danger of its detonation. Such measures have been carried out in tanks of the postwar generations such as the British Chieftain tank, for example, in which the live shells are carried in special containers with a fire-extinguishing liquid in their hollow, multi-layer walls. The foreign military press also cites designs in which some of the ammunition load is carried behind the other equipment or in a tank-bin, in which diesel performs an additional protective function.

The system of design measures to provide additional protection for the ammunition load underwent further development in the third-generation M1 Abrams and Leopard-2 tanks. In the M1 tank the ammunition (44 rounds) is located in the turret recess and is separated from the fighting compartment by armored closing doors. Eight rounds are contained in an insulated hull compartment, which are located in the turret floor and are protected by folding armored shields. The insulated compartments in the hull and in the turret recess have protective plates, through which the blast wave is swept outside the tank in case the ammunition is detonated, thereby preventing the death of the crew and serious damage to the tank. In the Leopard-2 tank this system provides for only 15 rounds, which are located in an insulated compartment in the turret recess. The rest of the ammunition (27 rounds) is in a shell-rack in the hull and is protected by inclined armor and by the left front fuel tank.

Fire protection for modern tanks is provided by structural elements and by providing them with highly efficient fire-fighting equipment. Based on the experience of the Arab-Israeli wars, the foreign experts consider the fuel, oil and hydraulic gun-laying system to be the elements posing the greatest danger from fire on a tank. A dangerous oil-and-air mixture rapidly forms in the fighting compartment if the high-pressure pipes are punctured. They therefore try to use hydraulic fluids with high burning temperatures or to use electrical laying lines like those used in British tanks. The elements of the hydraulic system most vulnerable to fire on the West German Leopard-2 tank are located in the turret recess and are isolated from the fighting compartment.

In the opinion of the foreign experts the M1 Abrams and the Leopard-2 tanks have the best automatic fire-prevention systems. The former has a system which operates on the special "helon" 1301 mixture. It is designed for extinguishing fires in the fighting and the engine and transmission compartments. It has seven double-band infrared sensors, which are sensitive only to the light emanating from the burning of liquid hydrocarbon substances. The fire-fighting system takes no more than 0.15 seconds to react, which makes it possible to extinguish a fire before an explosion occurs. The Leopard-2 tank has a similar system. Unlike the M1, however, it covers only the engine and transmission compartment.

The level of crew protection in modern foreign tanks against weapons of mass destruction is assessed in the foreign press as being clearly inadequate. The first special steps in this area began to be taken in the development of the second generation of tanks. These amounted to no more than equipping the tanks with filter-ventilation units, which purify the air and create above-atmospheric pressure inside the tank. It is believed that this system is adequately effective for a tank operating in an area contaminated with radioactive substances and against toxic chemical substances and biological agents.

The foreign experts see the continued improvement of tank protection against weapons of mass destruction as focusing on protecting them against the initial destructive factors of a nuclear blast, chiefly a neutron flux. They believe that this can be accomplished to a certain degree by including special materials in the armor structure. Devices are also being developed, which should protect the crew from being blinded by thermal radiation from a nuclear blast.

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FOREIGN MILITARY AFFAIRS

U.S. MULTI-PURPOSE HELICOPTER UH-60A 'BLACK HAWK'

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 40-42

[Article by Eng-Maj V. Nelin: "The American UH-60A 'Black-Hawk' Multi-Purpose Helicopter"]

[Text] Despite the fact that the world's peoples desire peace and despite the efforts of the Soviet Union and other socialist commonwealth nations to enlarge political detente, militaristic circles in the imperialist states, primarily the United States, are continuing to build up the striking power of their armed forces in the pursuit of their aggressive goals. In the opinion of the American experts various types of helicopters will have a special role in modern warfare. A great deal of attention is being devoted to the development and production of helicopters in the USA. An effort is underway to unify helicopters in all branches of the armed forces. A model which has performed well is used as the basic model for creating modifications designed for the performance of various specialized missions.

Specifically, the foreign press reports that the UH-60A Black Hawk multi-purpose helicopter developed by the Sikorsky company, which the army aviation began to receive in the second half of 1979, is presently being used as the basic model for a number of modifications for the U.S. ground forces, the Air Force and Navy.

The UH-60A Black Hawk helicopter (Figure 1 [figures not reproduced]) is used for transporting personnel and military cargo, for landing airborne forces, evacuating wounded and performing search and rescue work. In the 1980's it is planned to replace the obsolete UH-1 Iroquois helicopters, which perform similar missions, with this new type of helicopter.

The foreign press states that the Black Hawk helicopters are being delivered first to subunits and units of the U.S. ground forces which are located in Europe and are a part of the Rapid Deployment Force (101st vshd[Air Assault Division?], 82nd Airborne Division, 24th Mechanized Division and 9th Infantry Division). It is planned to build more than 1,100 of these by the beginning of the 1990's.

The development of the Black Hawk multi-purpose helicopter took into account demands for increased combat capabilities, reliability, technological operation level, survivability, flight safety and capability for operating in difficult climatic and weather conditions. The American military experts estimate that it

is approximately 1.5-fold more effective than the Iroquois helicopter for hauling personnel and cargo. For example, the UH-60A can haul 3,600 kilograms of cargo suspended on the outside and 11 airborne troops or four wounded men on stretchers with two accompanying personnel in the cabin. Its basic features are listed below.

Weight in kilograms:

maximum take-off weight--9,200
normal (with fuel for 2.3 hours of flying)--7,450
empty--4,820

Flight Speed (kilometers per hour):

maximum allowable--360
cruising--270

Rate of climb (meters per second):

at sea level in MSA[International Standard Atmosphere] conditions--12.5
at an altitude of 1,200 meters and a temperature of 35° C--2.4

Service ceiling (meters)--5,800

Hovering ceiling without ground effect in MSA conditions (meters)--3,200

Maximum flying time (hours)--3

Flight range at maximum take-off weight and with spare fuel for 30 minutes of flying time (kilometers)--560

Dimensions (meters):

length with rotating rotors--19.76
maximum height--5.13
main rotor diameter--16.36
wheel rotor diameter--3.35

The helicopter is of the single-rotor design with four-blade main and tail rotors and a three-strut landing gear with tail wheel (Figure 2). It carries a two-man crew: a pilot and copilot. The crew may also include one or two riflemen, who are carried in the cargo compartment. The helicopter has a solid-metal fuselage. The crew enters the cabin through side doors or through the cargo compartment. The latter has 1.37x1.75 meter doors on guide rails on both sides. The rear section of the fuselage is extended into a tail boom, on which a controllable stabilizer and the tail rotor are mounted.

The main rotor, which has articulated blades and elastomer bearings, consists of four blades, a titanium hub, control elements and blade dampers. The blades are folded against the tail boom for transporting the helicopter. The hollow spars of the blades are made of a titanium alloy, the covering of fiberglass. The helicopter has damage signaling devices.

The tail rotor, which has nonarticulated blades, is tilted together with the tail boom 20° to the side, which creates an additional vertical thrust component and increases the trimming range. The blades are made of composite materials with a graphite base, while the hub consists of two bars in a cross-shape.

The helicopter's power unit includes two T700-GE-700 gas-turbine engines housed in nacelles on both sides of the main rotor pylon. The engines are of modular design, which simplifies their servicing in the field. Each of them achieves a power of 1,540 hp in the maximum take-off mode. The main tanks hold 1,750 liters of fuel. An additional fuel tank can be installed in the cargo compartment to increase the helicopter's flight range.

The helicopter's transmission consists of reduction gears (for the engines; main and intermediate; and for the tail rotor) and connecting shafts. Should the lubricating system fail (loss of oil) all of the transmission reduction gears can function for 30 minutes, transmitting the power necessary to fly in the maximum flight mode.

According to "Jane's" the helicopter's airborne electronic equipment includes three ultrashort-wave communications radios, an intercom, a communications scrambler, a medium-wave automatic compass, a landing receiver, a Doppler speed and drift indicator, a radio altimeter, a warning receiver and an identification responder.

A number of steps have also been taken to increase the helicopter's survivability. The main rotor blades can still function after they have been punctured by a 20-25mm shell, for example, armor has been applied around the crew seats and the main systems, and reserve capacities (rezervirovaniye) are extensively employed. For purposes of reducing the possibility of the helicopter's detection by the enemy it can be equipped with a device which reduces the amount of heat emanating from the engines, with units for creating active infrared jamming of the homing heads of antiaircraft guided missiles and the fire control radar for antiaircraft missile systems and antiaircraft artillery, as well as an automatic device for releasing radar countermeasure reflectors and infrared traps. Two 7.62mm machineguns can be installed in the cargo compartment (on the sides of the fuselage).

In order to make fuller use of the helicopter's capabilities and to enlarge the range of missions performed by it, the British magazine FLIGHT reports that the Sikorsky company is developing the ESSS (External Stores Support System). This is a general-purpose, removable system for attaching external suspensions. It consists of two cantilever wings located near the cargo compartment beneath the engines. Each cantilever has two pilons from which releasing fuel tanks can be mounted: two 1,700 liter and two 870 liter tanks (Figure 3). The American experts believe that this will make it possible for the helicopter to fly to Europe (with a landing in the Azores) without aerial refueling. The ESSS system is presently undergoing field testing. It is planned to begin series production at the end of 1983.

Various armament arrangements can be suspended from the pilons instead of the fuel tanks or in combination with the latter. Specifically, the helicopter can carry up to four magazines of the M56 mining system, Tow antitank guided missiles, Stinger air-to-air missiles, 70mm NAR [expansion unknown] and containers with small arms and guns and radioelectronic warfare equipment. The American experts are giving special attention to the possibility of employing from the UH-60A Black Hawk helicopter Hellfire antitank guided missiles equipped with semiactive laser homing heads (firing range up to 6 kilometers). They believe that this will make it possible if necessary to considerably enlarge the pool of antitank helicopters, the main component of which at the present time are the AH-1S helicopters. A total of 16 Hellfire missiles are suspended on an external support (see colored insert [inserts not reproduced]), and the same number of missiles are carried in the cargo compartment.

It has already been pointed out that the UH-60A Black Hawk helicopter, the basic model of which has performed well, is being used for the creation of modifications of that helicopter. The foreign press notes that the following versions are being developed for the ground forces: the EH-60A radio reconnaissance helicopter system and the Quick Fix-2 radioelectronic countermeasure helicopter (Figure 4), as well as the EH-60B tactical reconnaissance and target indication helicopter system SOTAS.

The first version (with delivery to begin in 1983) is designated for performing reconnaissance of enemy radio aids and their subsequent suppression. The helicopter carries the necessary equipment for this (weighing around 800 kilograms), a direction-finding antenna (four dipoles) is mounted in the fuselage tail, and on the bottom there is an extensible interference-generating antenna. The system has an operating frequency range of 2-76 megacycles, an interference-emitting power of 40-150 watts and an effective range of more than 20 kilometers.

The main distinction of the EH-60B helicopter is a radar set mounted beneath the fuselage. The airborne equipment also includes equipment for processing and transmitting information. The system makes it possible to detect and intersect moving targets up to 80 kilometers away. Development of the SOTAS system has now been halted due to increased costs.

In addition to the ground forces, according to reports in the foreign press, the U.S. Air Force and Navy have also indicated an interest in the Black Hawk. Under a contract with the Air Force, for example, the Sikorsky company began working in the spring of 1982 on the development of the HH-60B Night Hawk search and rescue helicopter (to replace the HH-53) from the Black Hawk. It is designated for performing rescue operations in a combat situation, including night missions. It is planned to outfit the new helicopter with radar making it possible for the helicopter to hug the ground, a forward view infrared set and an aerial refueling system, as well as the ESSS system and additional internal fuel tanks. This will give the helicopter twice the flight range of the basic model.

Two modifications of the Black Hawk helicopter are being developed for the Navy. The SH-60B Sea Hawk helicopter, part of the ship-based LAMPS Mk3 system, is in the final stage of development. It is planned to begin delivering the helicopter at the end of 1983. It is designed for combatting submarines, detecting enemy ships and issuing target designation information to shipboard guided missile systems. The helicopter is outfitted with search radar, a magnetic submarine detector and a radiotechnical reconnaissance unit. The helicopter will be armed with small torpedoes and depth charges.

The SH-60C antisubmarine helicopter is actually a simplified version of its predecessor. It will be based on aircraft-carriers. After the mid-1980's it is planned to replace the SH-3 Sea King antisubmarine helicopters with the SH-60C. Its antisubmarine warfare missions will involve using its sonar to search for submarines, issuing information to SH-60B Sea Hawk helicopters operating from destroyers and frigates and to deck-based S-3A Viking ASW aircraft.

The foreign press also states that the American experts are continuing their efforts to simplify the flying of the UH-60A Black Hawk, attempting to reduce

the airmen's load. Among other things, it is planned to develop new flight control systems (electronic remote-controlled systems or systems employing fiber [volokonnaya] optics) and for displaying the necessary information in the crew's cabin (including voice-control), as well as to reduce the number of control elements. Multi-function television displays have now been developed, which it is planned to install at each airman's position. The top display will indicate navigational and flight information, while the bottom unit will display information from checks on the airborne radioelectronic equipment, the engine parameters and information from the radar and the forward-view infrared unit.

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FOREIGN MILITARY AFFAIRS

CANADIAN AIR FORCES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 43-47

[Article by Lt Col V. Maksimov: "Canada's Air Forces"]

[Text] In Canada, unlike the other capitalist states, including participants in the aggressive imperialist NATO bloc of which it is an active member, the armed forces are not separated into branches, that is, into ground, air and naval forces. According to the foreign press, they basically consist of six so-called functional commands: Mobile, Air Forces, Naval Forces, Canadian Armed Forces in Europe, Training and Communications. The Western press notes that to a certain degree the first three perform the functions of branches of armed forces, but that they do not have the more basic characteristics of the latter: their own operational planning and management bodies, rear and other types of support, communications or personnel training agencies. The functions of these agencies are performed for the armed forces as a whole by a joint national defense staff and two auxiliary commands--a training command (with certain exceptions, which will be discussed further on) and communications.

Within this unique, or as it is frequently referred to in the West, "unified," military organizational structure, Canada's air forces are represented primarily by the Air Force Command.

The organization, the fighting strength, the training of the personnel and prospects for the development of this command are described here on the basis of information published in the foreign press.

/Organization and fighting strength/: The Air Force Command is designated for performing the following missions: national air defense; air support for ground and naval forces and the provision of air cover for creating the conditions necessary for conducting combat operations; the air transfer of troops and cargo; air support for search and rescue operations conducted by state organizations and departments throughout the nation's territory and in adjacent ocean waters, as well as the independent performance of such operations within their own areas of responsibility.

Organizationally, the Air Force Command includes seven air groups: a fighter group, the 1st Canadian. naval air, the 10th Tactical Group, a transport group, the 14th Training Group and a reserve group (officially called an air reserve group).

The Fighter Air Group (with headquarters in North Bay in Ontario Province) is Canada's most significant combat air formation with respect to armaments and missions. It was created in June of 1982 out of an air defense air group. It includes the 409th, 416th and 425th fighter squadrons (CF-101B Voodoo interceptors), the 433rd and 434th tactical fighter squadrons (CF-5 fighter-bombers), and the 410th, 417th and 419th combat training squadrons (with CF-101B, CF-104 and CF-5 aircraft respectively). Their main base airfields are at North Bay in Ontario, Bagotville in Quebec, Cold Lake in Alberta and Comox in British Columbia. The group has a total of around 100 combat aircraft. In addition to air defense missions it is also charged with providing direct air support and air cover for units of the Mobile Command, as well as perfecting the combat training of the flight crews for both its own air subunits and those stationed in the FRG.

The Fighter Air Group commander is administratively subordinate to the commander of the Air Forces, but operationally he is under the NORAD commander. As such, he is also chief of the 22nd District of the VKO [possibly Military cartographic section] joint system for the North American Continent.

The 1st Canadian Air Group (stationed at Lahr Air Base in the FRG) is the air component of the Command of Canadian Armed Forces in Europe. It includes the most fully manned and trained subunits of tactical fighters: the 421th, 439th and 441st tactical fighter squadrons equipped with CF-104 Star Fighter aircraft (54 aircraft based at Baden-Sollingen). Operationally, the group is part of the 4th Joint Tactical Air Command of NATO's Joint Air Forces. Its main mission is to provide direct air support for the 4th Mechanized Brigade of the Canadian Armed Forces and if necessary, for units and subunits of the ground forces of other bloc members. In addition, the group includes a detachment of military air transports from the 412th Air Transport Squadron, the main forces of which are based in Canada, and the 444th Helicopter Squadron (11 CH-136 Kiowa helicopters), which performs aerial reconnaissance and artillery fire correcting missions and transports personnel and cargo. Both of these subunits are based at Lahr Air Base.

The Naval Air Group (Halifax, Nova Scotia) is operationally subordinate to the commander of the Air Forces. Its combat and operational training is organized and carried out in accordance with the interests and needs of the naval forces. The group is assigned the missions of searching for and destroying enemy surface ships and submarines, patrolling Canada's coastal zone and its territorial waters, performing surveillance of the situation on the water and protecting national fishing grounds, and performing search and rescue operations. The group includes the 404th, 405th and 415th (based at Greenwood, Ontario), the 407th (at Comox) and the 880th (Summerside, Prince Edward Island) squadrons of CP-140 Aurora coastal patrol aircraft (Figure 1 [figures not reproduced]; 16 aircraft, with which the first four subunits are equipped) and CP-121 Trekker aircraft (10 planes; the 880th Air Squadron), the 423rd and 443rd squadrons of CH-124 Sea King ASW helicopters (more than 70) and the 406th Combat Training Squadron (around 10 CP-121 aircraft).

The Western press notes that crews of the 404th, 405th, 415th and 880th air squadrons perform their missions in the area of the nation's Atlantic coast, while

the 407th Air Squadron operates on the Pacific coast. The fact is stressed that the CP-140 is the most modern aircraft in the Naval Air Group. It is a modernized version of the American P-3C Orion coastal patrol aircraft. Canada has purchased a total of 18 of these aircraft. As stated above, 16 of these are in the combat squadrons and two are in a naval air testing detachment (Greenwood).

In the opinion of the Canadian military experts, despite the fact that 26 CP-107 Argus aircraft were replaced with only 16 CP-140 planes, the capabilities of the Naval Air Group for finding and destroying submarines have increased greatly. This is attributed to the fact that they have improved airborne equipment and weapons and a greater flight range (more patrolling time at the same distance from base), as well as to the extensive employment of a special automatic control system on the ground.

According to foreign press reports the CP-121 aircraft with which the group is equipped are significantly obsolete and are now being used mainly for guarding national fishing grounds and performing search missions in naval rescue operations conducted in coastal waters.

The 10th Tactical Air Group (Saint Hubert, Quebec) is operationally subordinate to the commander of the Mobile Command (the group commander is this commander's deputy for aviation). It became an auxiliary group in June of 1982, when the 433rd and 434th tactical fighter squadrons were transferred from it to the Fighter Air Group and it was left with only helicopter squadrons. The group is presently responsible for the tactical transportation of troops and cargo for units and formations of the Mobile Command, for providing fire support for them (on an extremely limited scale), conducting aerial reconnaissance, communications and the transporting of wounded and ill. Three of the group's five squadrons, equipped with CH-136 Kiowa light reconnaissance helicopters and CH-135 Twin Hue general-purpose helicopters, are assigned to specific brigades of the Mobile Command near which they are based: the 408th Air Squadron (Edmonton, Alberta) to the 1st Motorized Infantry Brigade, the 427th Air Squadron (Petawawa, Ontario) to the 2nd Air-Mobile Brigade, and the 430th Air Squadron (Val-Cartier, Quebec) to the 5th Motorized Infantry Brigade.

Two squadrons (the 447th and 450th) are equipped with CH-147C Chinook air transport and landing helicopters and operate for the entire Mobile Command (engaging mainly in the transportation of various kinds of cargo and personnel). In addition, the group has the 403rd Training Helicopter Squadron. The 10th Tactical Air Group has a total of around 100 helicopters.

The Air Transport Group (Trenton, Ontario) performs the following missions: transporting troops and cargo to oversea theaters of military operations and within NATO, personnel and equipment of maintenance and service subunits reinforcing the Command of the Canadian Armed Forces in Europe; performing aerial refuelings for tactical aircraft; transporting high government officials; organizing and directing search and rescue operations in the areas of responsibility of the air bases at Trenton and Edmonton, as well as providing air transport for similar operations conducted by other departments in other areas of the continental part of the nation and adjacent bodies of water; tactical airlifting of personnel, weapons and military equipment to theaters of military operations.

The Air Group includes the 435th and 436th air transport squadrons (20 CC-130 Hercules medium military transports, based at the Edmonton and Trenton air bases respectively), the 437th Air Transport Squadron (Trenton; 5 CC-135 transports, two of which are equipped as refueling tankers), the 412th Air Transport Squadron (CC-109 Cosmopolitan and CC-117 Falcon aircraft with enhanced comfort), the 413th, 424th, 440th and 442nd transport and rescue squadrons (CC-103 Buffalo aircraft, CF-138 Twin Otter aircraft and CH-113A and D helicopters specially outfitted for performing search and rescue work; air bases at Comox, Summerside, Trenton and Edmonton), the 426th Air Transport Training Squadron (three CC-130 aircraft; Trenton), the 429th Transport Squadron (four CC-130 and more than 10 CC-133 Silver Star, CT-114 Tutor and CC-129 Dakota aircraft). Its main mission is to support subunits of the 14th Training Group deployed with it (a navigator school and the central flight school), although its CC-130 aircraft are regularly involved in all large exercises and airlifts of troops and cargo planned by the superior command.

The 14th Training Air Group has the central flight school (which trains instructor-pilots), the 2nd and 3rd flight schools (Moose Jaw, Saskatchewan and Portage la Prairie, Manitoba, respectively), a navigator training school and a center for the selection of flight crew members (Toronto, Ontario). It is the largest in numbers of aircraft (more than 200). The backbone of the aircraft fleet is composed of CT-114 Tutor jet training aircraft of Canadian design (the 431st "Snowbirds" Pilotage Demonstration Squadron, which is officially a part of the group but is directly subordinate to the commander of the Air Forces, is equipped with them). The rest of the aircraft consist of CT-134A Musketeer-2 motor-propeller aircraft and CH-139 and CH-135 helicopters.

The Western press reports that the Air Reserve Group is the smallest organizational unit of the command of the Canadian Air Forces with respect to the number of planes and helicopters in it. It includes several subunits, which are designated for reinforcing other air groups of the Air Force Command in time of war and which organize their combat training accordingly. They have their own planes and helicopters (as many as 30). The 420th Air Squadron is an exception. Its flight personnel use the CP-121 aircraft of the Naval Air Group's 880th Squadron.

The Air Reserve Group is regularly involved in exercises conducted by the Air Force Command, using as much as 30 percent of its annual flight time for this purpose.

According to the foreign press /personnel training/ for all the functional commands of the nation's armed forces is assigned to the Training Command. The Air Force Command is an exception. It receives all its ground specialists, including the aircraft engineers and technicians, from the Training Command and trains the flight personnel itself. It has the proper training institutions and combat training subunits for this (these have already been mentioned in the article). Individuals with the required general education and whose health is adequate for flight work are permitted to take the training.

The candidates for the training undergo medical certification and psychological testing at the center for the Selection of Flight Personnel. Individuals designated as suitable for the training undergo schooling for young officers (11 weeks).

after which they receive the rank of lieutenant and are sent to the 3rd Flight School. For 20 weeks they undergo initial flight training on the CT-134A Musketeer-2 piston-engine aircraft (total flying time, 25 hours), during which the instructor-pilots assess the abilities of each trainee and give the final assessment of the expediency of using an individual in the flight work. The foreign press notes that rigid demands are made of the students. This is borne out by the fact that 25-30 percent of the students are eliminated in the first phase of the training.

The main training is received in the 2nd Flight School. For a period of 10.5 months the future pilots must fly up to 220 hours on CT-114 Tutor jet aircraft, developing group coordination in various situations, learning to fly by instrument and air navigation, and must also master the basic principles of combat employment. Upon completion of this school they receive their "wings" (a badge worn on the chest) and are sent to combat training subunits for advanced flight training in their specific field (fighter, helicopter pilot, pilot of a multi-engine aircraft). Fighter pilots receive this training on CF-5 aircraft in the 419th Combat Training Air Squadron. For 5.5 months they master the specific techniques for flying a jet fighter and practice the combat employment of its airborne weapons against both ground and air targets. The average total flying time for each trainee is approximately 96 hours.

After completing their training in the squadron the pilots are considered ready for combat flights on the CF-5 aircraft. Some of them may be assigned directly to the 433rd or 434th Tactical Fighter Squadron, which is equipped with these aircraft. Personnel for the 1st iagr[Fighter Group] undergo additional training in the 417th Combat Training Air Squadron (CF-104 aircraft), and personnel designated for subunits of air defense fighters--in the 410th Combat Training Air Squadron (CF-101 aircraft). The trainees remain in these squadrons 5 months (with a total of up to 70-75 hours of flying time), after which they are considered ready for combat flights on the corresponding types of aircraft.

Upon completing their training in the 2nd Flight School the pilots of multi-engine aircraft receive advanced training in training squadrons of the naval and transport air groups (406th and 426th air squadrons respectively), and learn to fly specific types of aircraft in the line subunits. After completing the basic flight training course helicopter pilots are sent to the 3rd Flight School, where for a period of 5 months they learn to fly the CH-139 helicopter (accumulating around 70 hours of flight time), and then to the 403rd Training Squadron of the 10th Tactical Air Group and to helicopter subunits of the transport and naval air groups to master the piloting of specific types of helicopters.

The crews perfect their flight and tactical skills during their combat training in line units and subunits. It is in the form of ordinary planned training and daily flights for developing skills in the performance of specific missions. In this training great importance is attached to various exercises conducted either independently or in coordination with the air forces of the USA, Great Britain and other members of the NATO bloc. The training complex at the Cold Lake Air Base is one of the main sites where these activities are organized within Canada (Figure 2).

/Development/: The foreign press reports that considering the significant degree of obsolescence of the aircraft fleet of the armed forces and desiring to keep up with the more active participants in the North Atlantic bloc, the nation's military leadership has decided to fundamentally reequip the Air Force Command. The American F-18 Hornet fighter (in Canada it is called the CF-18; Figure 3) was selected in 1980 from among a fairly large number of "contenders." The re-armament program is planned to take 6 years (from October 1982 to September 1988) and calls for the purchase of 138 aircraft (113 CF-18A single-seater combat aircraft and 25 CF-18B two-seater combat training aircraft). It is planned to replace the CF-101 air defense fighters and the CF-5 and CF-104 tactical fighters with these aircraft. The plan calls for first reequipping the 410th Combat Training Squadron of the Fighter Air Group (by October 1983), which has been assigned the mission of retraining the personnel. It is planned to reequip the 409th and 425th fighter squadrons with these aircraft in July and November of 1984, after which the delivery of aircraft to the 1st Canadian Air Group will be started. It is planned to complete the reequipment of the latter's 421st, 439th and 441st air squadrons by June of 1986. The 434th Tactical Fighter Squadron and the 416th Fighter Squadron of the Fighter Air Group will then be reequipped with these aircraft.

Along with this program it is planned to carry out a number of other measures, including improvement of the aircraft control systems, the development of the airborne weapons and so forth. The Canadian military experts calculate that the combat capabilities of the Air Force Command will be increased significantly by the implementation of these measures.

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FOREIGN MILITARY AFFAIRS

FIRING CAPABILITIES OF 'ALPHA JET-2'

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 48-51

[Article by Col V. Shturmanov: "Methods of Employing Weapons from the Alpha Jet-2 Aircraft"]

[Text] The foreign press reports that a new version of the series-produced Alpha Jet training aircraft has been developed and has undergone flight tests in France. It is the Alpha Jet-NGEA light attack aircraft (sometimes called the Alpha Jet-2 in the Western press), which is designated for striking at ground targets in the process of providing direct air support for the ground forces. It will ordinarily operate at low or extremely low altitudes.

No noticeable changes have been made in the airframe. Externally, the attack aircraft differs from the series-produced aircraft only in the shape of the fuselage nose. It is rounded in the former, but in the latter it is shaped like the frustum of a cone, inside which the laser range-finder is installed (Figure 1 [figure not reproduced]).

Unlike the basic model the Alpha Jet-2 is outfitted with a set of modern sighting and navigation equipment. This is based on the ULiss-81 inertial navigation system, the TMV-630 compact laser range-finder, the AHV-9 radio altimeter, the VE-110 system for superimposing information on the front glass and a multi-function airborne electronic computer. All of these are existing models or somewhat modernized models of equipment used on tactical fighters of the Mirage series, including the latest Mirage-2000 aircraft.

The French experts feel that the creation of this set of equipment out of components already in use will not only make it possible to reduce the cost and the time needed for developing a weapons control system, but will also offer a number of other advantages. Among other things, the availability of specialists in the air forces, as well as sets of spare parts and assemblies, premises and ground equipment for servicing this equipment, will make it possible to organize the operation of this new attack aircraft without any special efforts. The outfitting of the aircraft with identical equipment will make it possible to accelerate the process of retraining the airmen to fly them.

The foreign press stresses the fact, however, that the main purpose of equipping the Alpha Jet aircraft with the above-mentioned set of sighting and navigation

equipment is to enhance its combat capabilities for performing strikes against ground targets with various airborne weapons.* The weapons can be sighted directly on the target or with an adjusted point of aim to allow for weapons error and wind conditions (VTP) selected in advance. The latter is possible if the position of the target relative to the VTP is known. In either case the aircraft's weapons control system can operate in one of two main modes: continuous calculation of the dropping point or of the ammunition striking point. A brief description of methods of sighting for employing the weapons from low or extremely low altitudes with the system functioning in these modes is presented here. It is based on information published in the Western press.

The /mode of continuous calculation of the dropping point/ is mainly used for making strikes with all types of free-fall aerial bombs and with certain delayed-fall bombs with pitch-up. The attack on the target is carried out in the following manner (Figure 2, left).

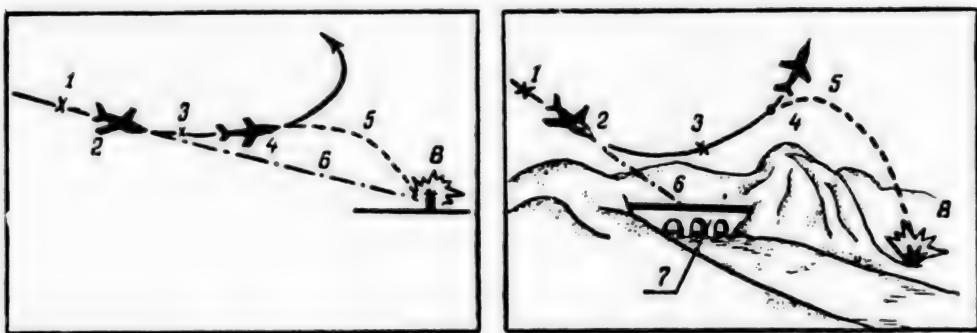


Figure 2. Bombing with pitch-up when sighting directly on the target (left) and with a VTP (right): 1. Beginning of attack; 2. Beginning of vertical maneuver; 3. Allowed bombing range; 4. Bomb dropping point; 5. Falling path of bomb; 6. sighting line; 7. VTP; 8. Target

Upon detecting the target the pilot heads the aircraft toward it, turns on the laser range-finder and follows the sighting line for a certain time. Measurements from the range-finder go into an airborne computer. Taking the aircraft's basic flight data (course, speed, altitude) and changes in these data, as well as the characteristics of the aerial bombs being used, into account, the latter continuously calculates the dropping point, the moment at which the maneuver (the climb) is to be started, the permitted bombing range and course adjustments. This information is depicted in the form of special symbols or blips on the semi-transparent mirror (indicator) of the system for superimposing information on the front glass.

Upon receiving the signal to begin the climb, the pilot begins performing this maneuver, maintaining his course according to information on the above-mentioned indicator. At the permitted bombing range he switches on the proper toggle switches for the bombing system and continues performing the maneuver until the aerial bombs are dropped. The latter is performed automatically when the symbols

* For a more detailed description of the Alpha Jet aircraft's combat capabilities see ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No. 12, 1982, pp. 60-64.--Editor

for the aircraft and the dropping point coincide, that is, when the attack aircraft reaches the continuously calculated dropping point. After this the pilot pulls the aircraft out of the attack and operates in accordance with the mission (makes a repeat run on the same target, searches for and attacks another target, returns to base...).

The same attack mode can be used for bombing with a VTP, with a certain characteristic reference point selected as the VTP. The pilot performs the sighting by the VTP, however, and bombs are dropped on the assigned target (Figure 2, right). The airborne electronic computer continuously calculates the aerial bomb dropping point, considering, in addition to the above parameters, the target's coordinates relative to the VTP.

With respect to bombing with a VTP, the foreign experts note that this system has a number of advantages over bombing with sighting directly on the target. Specifically, it makes it possible to strike at targets which for some reason or another the crew cannot detect in good time visually or by means of the on-board technical equipment (if the aircraft carries such equipment). In addition, the system makes it possible to perform the main stages of the sighting away from the target, out of range of air defense weapons. All of this is important for the crews of attack aircraft, which ordinarily operate at low or extremely low altitudes, when it is significantly more difficult to detect small targets.

Certain foreign military experts stress the fact, however, that the accuracy of bombing with a VTP is not as good as when the sighting is on the target. The extent of the total error is significantly affected, in addition to the traditional errors resulting from the operating features of the sighting systems, ballistic deflection of the aerial bombs and crew errors, by the accuracy with which the target coordinates relative to the VTP are determined and error in reckoning the aircraft's path (from the end of the sighting with the VTP to the dropping of the bombs). In their opinion, the latter increases in direct proportion to the distance from the VTP to the target and can be fairly extensive if the navigation equipment is not highly accurate.

Considering the capabilities of the Alpha Jet-2 aircraft's sighting and navigation system from this aspect, the Western press notes that the absolute extent of error in reckoning the path is not great. Specifically, the magazine INTERNATIONAL DEFENSE REVIEW has written that this error is approximately 15 meters when the distance from the VTP to the target is 10 kilometers. That is, it is fully commensurate with conventional bombing errors and radii of destruction for aerial ammunition. On the basis of this it has been decided that the Alpha Jet-2 crews will extensively employ bombing methods based on the VTP.

The same magazine cites an example of bombing from horizontal flight at a camouflaged target, using a VTP located 10 kilometers from the target (Figure 3). In this case the pilot performs the sighting by the VTP (as described above) and puts the aircraft into horizontal flight mode. At a calculated distance from the VTP (depending upon the flight speed and the target's angle) he turns onto the bombing course. Maintaining the flight mode prescribed by the information displayed by the systems for depicting information on the front glass, the

pilot flies the aircraft to the dropping point (its position is continuously calculated by the onboard electronic computer, beginning the moment the sighting by the VTP is started). The aerial bombs are dropped automatically.

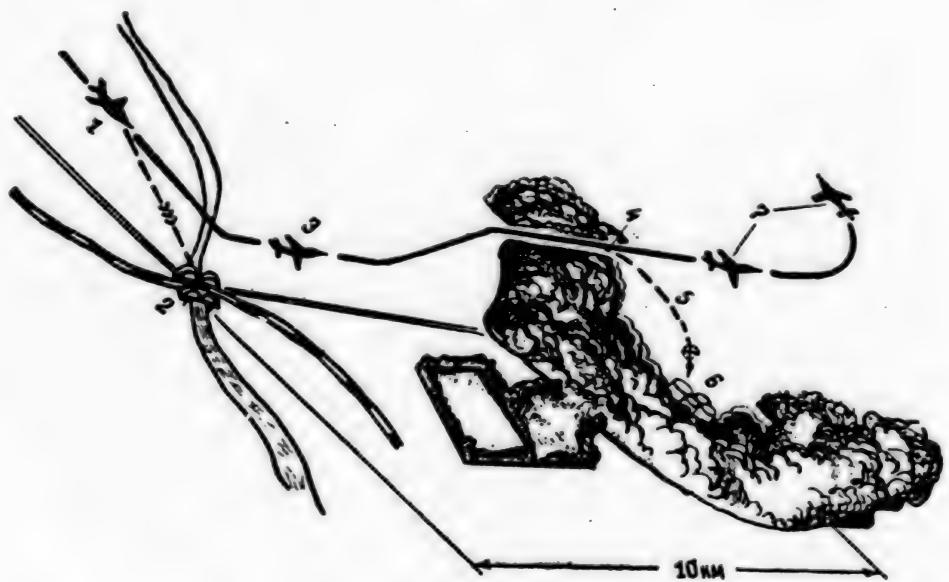


Figure 3. Bombing from horizontal flight while sighting on a VTP located off to the side of the target: 1. Sighting by the VTP and putting the aircraft into the horizontal flight mode; 2. VTP; 3. Flying on the bombing run from information depicted by the system for superimposing information over the front glass; 4. Dropping point for aerial bomb; 5. Path of aerial bomb; 6. Target; 7. Flight after bombing and pulling the aircraft out of the attack

The /mode of continuous calcualtion of the dropping point/ is designed for firing the gun, for launching free-flight airborne missiles (NAR) and for dive-bombing and bombing from horizontal flight against ground targets.

The foreign press reports that the Alpha Jet-2 will ordinarily fire its cannon and launch free-flight airborne missiles against ground targets from a sloping dive. The sighting process is begun, as in the previous cases, by measuring the distance to the target or the VTP by means of the laser range-finder. On the basis of this measurement, information on the aircraft's flight mode and the characteristics of the ammunition being used, the electronic computer begins continuously calculating the latter's striking point on the earth's surface. This point is depicted in the form of a special blip on the indicator of the system for displaying information against the front glass.

The pilot then flies the aircraft so as to superimpose this blip over the target. When they coincide, he fires the cannon or launches the free-flight airborne missile.

This sighting system is also used for bombing. The only difference is that when aerial bombs with a steep trajectory are employed (delayed-fall), the aircraft

flies horizontally and the target may go out of the pilot's sight (be covered by the aircraft's nose) by the time the ammunition is to be dropped. The air-borne equipment develops a symbol for a so-called dummy target and lights it up on the indicator to assure uninterrupted sighting. The bombs must be dropped when the blip for the calculated striking point coincides with this symbol.

Operating in the mode of continuous calculation of the striking point, the aircraft's sighting and navigation equipment also makes it possible to bomb targets using a VTP. The sighting is performed in the same way as for the mode of continuous calcualtion of the dropping point, with the single difference that the pilot flies the aircraft so that the blip from the bomb striking point coincides with the sighted target or with the dummy target symbol, and not the aircraft symbol with the blip for the dropping point.

In addition, the Alpha Jet-2 attack fighter's weapons control system makes it possible to fire the cannon at an air target at one or two previously prescribed ranges, taking target aspect adjustments into account.

In general, the foreign military experts estimate that this aircraft's set of sighting and navigation equipment make it possible to fly along a route with great accuracy (average deviation for 1 hour of flight is slightly more than 1 kilometer), and to improve cannon firing accuracy by 20 percent, the launching of free-flight airborne missiles by 40 percent and bombing (delayed-fall aerial bombs) by 30 percent, compared with the basic aircraft model. Furthermore, it makes it possible to perform sighted bombing both manually and with the automatic dropping of the bombs from horizontal flight or pitch-up, whereas dive-bombing is the main method used on the Alpha Jet combat training aircraft.

The Western press notes that it is planned in the future to outfit the Alpha Jet-2 with improved engines, with a total thrust at low altitudes 13 percent greater than for those presently installed in the aircraft. According to the French experts this will make it possible to significantly improve some of the aircraft's technical and tactical characteristics. Specifically, it will be able to carry a greater payload, and those maneuverability features which depend upon its thrust-weight ratio will be improved (its rate of climb will increase, its possibilities for longitudinal speed maneuvering will be enlarged, and so forth).

Representatives of the French Dassault-Breguet company assume that the outfitting of the Alpha Jet aircraft with the new sighting and navigation equipment and more powerful engines will attract interest in it not only from the French air forces but from other nations as well. They are therefore counting on additional orders for the production of these aircraft, that is, on increasing their income from weapons sales.

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FOREIGN MILITARY AFFAIRS

AERIAL MINE-LAYING SYSTEMS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 52-55

[Article by Eng-Col (Reserve) S. Chernov: "Aerial Mine-Laying Systems"]

[Text] Aerial mine-laying systems are an integral part of the remote mine-laying system and are designated for the rapid laying of mine fields. Such systems are being developed in many foreign countries. In the USA, for example, the forces already have them and are learning to use them. In the opinion of the foreign military experts this type of air weapon is extremely promising and should be fairly extensively employed in combat operations. This opinion, as the foreign press notes, is based mainly on the following factors:

- the development of fundamentally new, light-weight and compact mines, which are highly effective and reliable and which retain their destructive capacity after receiving heavy blows (upon striking the earth at great speed);
- the fact that it is possible to simultaneously employ a considerable number of mines, which makes it possible to mine a large area within an extremely short period of time;
- the fact that the mines can be delivered precisely to the designated area for laying the mine fields by aircraft, even within territory controlled by the enemy. It is felt that the laying of mine fields immediately in front of the enemy's battle formations will help to enhance the effectiveness of the mine fields both as a result of the surprise factor and because they can be laid precisely where a specific enemy is located.
- the development of universal bomb cases designed to be loaded with various small-caliber ammunition and to be used from several different carriers. The use of this ammunition makes it possible not only to strike at concentrations of personnel and equipment and other important targets, but also simultaneously to mine the surrounding area. This will significantly limit the enemy's mobility, preventing the enemy from leaving the area of the attack and from repairing the damaged installation.

According to reports in the foreign press the development of aerial mining systems is being most actively pursued in the USA,* the FRG, Great Britain, France and Italy. In some cases the nations are joining their efforts to minimize the amount of time and money spent for this purpose, performing joint research,

*For information on American aerial mine-laying systems read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No. 1, 1982, pp. 59-64.--Editor

experiments and tests from the air. Ordinarily, the work involves three main areas: the development of ammunition (or an ammunition group) of a prescribed caliber and type, the development of the bomb case, the selection of one or several carriers for the ammunition.

All of the existing case-type ammunition and that being developed is broken down into two types by the military experts: active ammunition, which has an instantaneous fuse and is activated during the fall; and passive ammunition, (mines) laid in a condition after falling to earth ready to be exploded by moving targets. The mining systems are classified as plane or helicopter systems, depending upon the type of carrier used.

/Plane mining systems/ include one or several universal jettisoned or non-jettisoned bomb cases, aerial mines (one case may contain several types, possibly mixed loads as well--small-caliber bombs and mines) and a mining control system. Considerable attention is presently being devoted to the development of systems with the bulk of the load made up of effective anti-tank mines. The foreign press notes that this reflects an attempt to successfully accomplish the mission of combatting not individual enemy tanks but entire tank subunits moving on the battlefield in dispersed battle formations.

The West German mining system consists of the MW1 universal case loaded with MIFF anti-tank mines. The case contains four separate sections joined into a single unit. Each section has 28 horizontal guide tubes (perpendicular to the case's longitudinal axis), which contain the ammunition. At the designated moment they are shot off to the right and left by means of propelling charges.

The MIFF mine, which acts on the tank's bottom, is designed to affect the entire bottom area of the target. It has a small directionally controlled explosive charge and a magnetic proximity fuse. The charge is in the shape of a cylinder, with two metal-covered recesses in the ends. When the mine explodes destructive forces are formed in these recesses, regardless of what part of the mine is against the earth.

The mining can be performed by Torpedo or F-4 Phantom fighter-bombers from extremely low altitudes (30-60 meters). The sequence for firing the ammunition and the intervals are controlled by an onboard electronic computer and are determined by the size of the area to be mined and the prescribed density. The case contains a total of 732 mines, and a 2,500X500 meter minefield can be laid with them. After the ammunition is used up the case is ejected in the air.

Other ammunition, including MUSPA and MUSA mines, are being developed as the system undergoes testing. The former is an antipersonnel fragmentation mine, designed to be used jointly with the MIFF antitank mine for purposes of reinforcing the minefield and making it difficult for the enemy to reconnoiter and cross the minefield. The MUSA anti-vehicle mine will be laid on the routes of enemy transport columns and at enemy airfields and is designed to put unarmored vehicles and taxiing planes and helicopters out of action. The mine is equipped with a fuse which can detect the enemy and detonate the mine when the enemy comes within range.

The so-called light-weight version of the MW1 bomb case, designed for use from the Alpha Jet aircraft and from unmanned aircraft, as well as a guided container (designated the MW-X) with an engine unit and a homing system for the final flight phase are also being developed. The West German experts believe that this system can be used for delivering mines to areas with a powerful air defense system and can be dropped from the carrying aircraft a considerable distance from the area to be mined.

Two plane mining systems are being developed in Great Britain: the JP233 case, which is not ejected, and the guided VJ291. The first case (with a loaded weight of 2,335 kilograms and a length of 6.55 meters) is designed mainly for putting enemy airfields out of action. It is outfitted with 36 small-caliber SG357 concrete-piercing bombs for damaging runways (VPP) and taxiways and with 255 NBM876 anti-vehicle mines for making it extremely difficult to carry out restoration work.

The NBM876 is a fragmentation mine which acts against the bottom of a vehicle and is designed for destroying personnel and unarmored equipment. It will be used when the enemy is attempting to fill in craters on the runway. It has a solid shell and a directionally controlled charge. After it is dropped from the case the mine falls by parachute, which is shot away from the mine when it alights. Upon striking the earth spring-loaded arms on the shell bend out to prop the mine in the proper position (with the directional charge on top, Figure 1 [figures not reproduced]). The mine is activated by a magnetic proximity fuse when the target is above it or when an attempt is made to remove it from the spot where it has landed.

According to reports in the foreign press Great Britain's air forces adopted the JP233 in 1982, and it has been placed into series production. It is planned to use the Tornado fighter-bomber as the main carrier, with two cases suspended beneath the fuselage (Figure 2).

The VJ291 guided container is loaded with combined-action ammunition (of the mine-bomb type). It can glide from 4 to 8 kilometers when dropped from a height of 60-100 meters from an aircraft flying at a speed of 1,100 kilometers per hour. Target location information is fed into the container's guidance system before it is dropped. The ammunition is dispersed in the target area by centrifugal force generated from the container's longitudinal rotation. Each piece of ammunition, which has a directed-action explosive charge, descends by parachute, exploding when it strikes the roof of an armored target and putting it out of action. If the ammunition lands on the ground, it is activated, like a mine, when the target (a tank) passes over it (the magnetic fuse is activated). The area of destruction (mined area) from the VJ291 system can be adjusted by the pilot, depending upon the size of the target. It is planned to employ these from Torpedo, Jaguar (see colored insert [insert not reproduced]) and Harrier aircraft.

The French mining system consists of a BLG.66 Beluga ejected bomb case loaded with antitank or antipersonnel fragmentation mines (weight 1.2 kilograms; length 15 centimeters; diameter 6.6 centimeters). The case has 151 launch tubes, each of which contains a mine fired off in a prescribed sequence by means of a pyrotechnic cartridge (Figure 2). A brake parachute opens on the dropped case,

which slows the fall and stabilizes the case, after which the mines are shot out. Ordinarily, the drop is made from a height of 60-120 meters, with the aircraft flying at a speed of up to 1,000 kilometers per hour. The mined area is 120X40 or 240X40 meters, depending upon the mission, and is assigned to the pilot prior to the mining. The case can also be loaded with small-caliber hollow-charge or fragmentation bombs. It can even be loaded with a combination of various types of mines and bombs. The French air forces are armed with the Beluga bomb case, which can be employed from Jaguar or Alpha Jet aircraft.

The /helicopter mining systems/ include universal mine cases and automatic mining control equipment. The cases can be rigidly attached to the helicopter sides or suspended from the outside. The mines are force-dropped by means of pyrotechnic cartridges ignited in advance in a specific procedure corresponding to the specific mission and the specific conditions or by the weight of the ammunition itself.

Some foreign military experts express doubt as to the feasibility of using helicopter mining systems, believing that they will be too vulnerable to ground fire in a combat situation. Nonetheless, judging from foreign press reports, a number of nations are still developing such systems.

The West German MSM-H mining system is designed for use from the Bundeswehr's UH-1 Iroquois helicopters. It consists of two cases rigidly attached to the helicopter sides and loaded with AT-2 bottom-effect antitank mines (Figure 4). The case has a light metal frame containing five sections of launch tubes (four each). A launch tube contains five mines and a pyrotechnic cartridge for shooting them out. The case contains a total of 100 mines.

The AT-2 mine has a cylindrical metal shell, on the outside of which setting arms with articulation are attached. When the mine strikes the ground they are forced open by springs and position the mine vertically, with the recess for the guided-action ammunition charge on top. The mine has an electronic contact fuse. Its sensor is a short wire stem, which causes the explosive charge to explode when it touches the target. When the mine has been set up on the ground and readied for action, it can be activated by the target itself, by an attempt to remove it, or by setting it to explode after a certain period of time has elapsed (self-destruction). The time period is set in advance in accordance with the combat situation and the mission and can range from several hours to several days.

The mining is performed from a height of 5-15 meters at a speed of around 90 kilometers per hour. An area up to 40 meters wide can be mined.

Several versions of the helicopter mining system have been developed in Italy, some of which are already in the forces. The foreign press notes that they employ a uniform mine case design, that they are suspended on the outside of the helicopter and are loaded with antitank, track-affecting and antipersonnel land mines (both types are made of high-strength plastic and are not detected by induction mine detectors).

The VS/MD system is designed for laying VS1.6 antitank mines and VS50 or Mk2 antipersonnel mines. It consists of a latticed container, universal cases with mines and control equipment located in the pilot's compartment. The container is made of angle iron and is designed to house 40 universal mine cases with mines (five antitank or 48 antipersonnel mines in each). One end of the case has a lid clamped into place. All of the cases are arranged vertically in the container, lids down with the clamps removed. The lids are opened by remote control by the pilot.

The container with the cases is attached to the helicopter by means of a special suspension device held by a cargo hook (Figure 5). The mining control system is connected to a panel in the pilot's compartment by means of a multi-prong connection. The mining can be performed automatically or manually. In the former case the "Drop" button is pressed, after which the lids of the mine cases open at intervals of 0.2-1 second. This provides for the laying of a field of the required size and density with the helicopter flying at a set speed. The mining is ordinarily performed from heights of around 200 meters at a speed of up to 100 kilometers per hour. When the lids open the mines fall out of the case by their own weight. The safety pins are removed from the mines the moment they emerge.

The DAT system is basically the same as the one previously described, differing mainly in the mines employed. These are MATS antitank mines (128) and MAUS antipersonnel mines (1,280).

The SY-AT system is an improved version of the first two models. It uses two types of modules (a center module and two attached to its sides), which make up the container. The center module contains 32 cases, each of which holds five SB-81 antitank mines or 78 SB-33 antipersonnel mines, while a side module holds eight such cases. A container can hold as many as 245 antitank mines or 3,744 antipersonnel mines.

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FOREIGN MILITARY AFFAIRS

U.S. RADAR IFF SYSTEM MK 12

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 55-58

[Article by Eng-Col A. Sergeyev, candidate of technical sciences, and Eng-Lt Col E. Tyurin: "The American Mk12 Radar Identification System"]

[Text] Radar identification (RLO) systems designed for determining whether something belongs to one's own or to enemy armed forces have been developed abroad since the beginning of the 1940's. The USA has been the leader in their development. The Mk2, 3, 5 and 10 radar identification systems were developed and employed there in the 1940's and 1950's. The Mk10 was subsequently modernized to improve its tactical and technical characteristics, and the improved model is still in use in the air forces of both the NATO countries and other states which are not members of this aggressive imperialist bloc but which use American aviation equipment.¹

In the opinion of the U.S. military experts, however, the Mk10 system has an extremely important shortcoming--so-called poor protection against imitation or mimic-resistance: if necessary the enemy can imitate the "friend or foe" response signals. The new Mk12 radar identification system with complex coding was therefore developed. It is presently used by the armed forces of the USA, Canada, the FRG and the Netherlands along with the Mk10.

The Mk12 system is a unified radiotechnical system, which includes airborne radar interrogator and responders, ground-based interrogators and ship-borne interrogators and responders (the characteristics of some of them are given in Tables 1, 2 and 3). They all form two-way lines of communication: aircraft-to-aircraft, ground-to-air, aircraft-to-ship, ship-to-aircraft or ship-to-ship. The system can function in five modes, with modes 1, 2 and 4 used for identification, and modes 3/A and C for controlling air traffic (see figure). The carrier frequency for the interrogator signals is a fixed 1,030 megacycles, while the response signals are transmitted at 1,090 megacycles.

Information for the interrogation is fitted into the time space between interrogation intervals P_1 and P_3 (except for mode 4). The response signal contains up to 16 pulses with time intervals in multiples of 1.45 mks [maxwells?]. The synchronized pulses F_1 and F_2 are always present in the response signal, and the information pulses (there are 13) are arranged between these. The 13th is not yet

1. For a more detailed discussion of the Mk10 system read ZARUBEZHNOYE VOYENNOYE OBOZRENIYE, No. 8, 1981, p. 49.—Editor

being used. In general, the 12-pulse code combination makes it possible to transmit up to 4,096 discrete identification codes, and the 11-pulse code combination of mode C permits the transmission of information on barometric altitude (every 30 meters; the reading is made relative to the international standard atmosphere²).

(1) Характеристики (2)	АН/APX-76 (США)	АН/APX-104 (3)США)	(4) LMT (Франция)	LSR-2000 (5)ФРГ)
(6) Дальность действия, км	До 200	До 370	.	.
(7) Частота излучения запросных сигналов, МГц.	1030	1030	1030	1030
(8) Частота приема ответных сигналов, МГц	1090	1090	1090	1090
(9) Чувствительность системы декодирования, дБм	-83	-83	-83	-85
(10) Выходная мощность, кВт.	2	1,2	2	2
(11) Коэффициент заполнения, проц.	1	1	.	1
(12) Наработка на отказ, ч.	225	1000	.	1000
(13) Максимальная рабочая высота, км	21	21	21	.
(14) Потребляемая мощность:				
(15) по переменному току, ВА	230	60	100	140
(16) по постоянному току, Вт	34	11	.	25
(17) Вес, кг	16,8	9	26	13
(18) объем, дм ³	12	10,9	16,6	11

Figure 1. Main Technical and Tactical Features of Aircraft Radar Interrogators

Key:

1. Characteristics	10. Output power (kilowatts)
2. AN/APX-76 (USA)	11. Loading factor (percentage)
3. AN/APX-104 (USA)	12. Time between failures (hours)
4. LMT (France)	13. Maximum operating altitude (kilometers)
5. LSR-2000 (FRG)	14. Power used
6. Range (kilometers)	15. Alternating current (volt-amperes)
7. Interrogation signal emission frequency (megacycles)	16. Direct current (watts)
8. Response signal reception frequency (megacycles)	17. Weight (kilograms)
9. Decoding system sensitivity (decibels at the 1-milliwatt level)	18. Size (cubic decimeters)

A special crypto-safe identification mode (mode 4) is included in this system to make it impossible for the enemy to imitate the response signal. Cryptographic computers are incorporated in the interrogation and response equipment for this purpose. The foreign press notes that the information obtained from the processing of the response signals in this mode makes it possible to determine with a great degree of probability (close to 1) whether the object (ship) being identified

2. Sea level and the following conditions are taken as the starting point for the altitude readings in the international standard atmosphere: atmospheric pressure of 760 mm of a mercury column, a temperature of 15 C (288 on the Kelvin scale) and an air density of 1,225 kilograms per cubic meter.--Editor

(1) Характеристики	(2) AN/APX-72 (США)	(3) AN/APX-77A (США)	(4) AN/APX-101 (США)	(5) EMD-3400 (Франция)	(6) STR-700 (ФРГ)
(7) Частота приема запрос- ных сигналов, МГц . . .	1030	1030	1030	1030	1030
(8) Частота измерения от- ветных сигналов, МГц . . .	1090	1090	1090	1090	1090
(9) Предельная рабочая вы- сота, км	30	30	.	30
(10) Выходная мощность, кВт	0,5	0,5±1	0,5	0,5	0,5
(11) Номинальная чувстви- тельность приемного устройства, дБм . . .	-90	-77	-77	-78	-75
(12) Динамический диапазон, дБ	50	.	.	.	55
(13) Избирательность, дБ . . .	60	60	.	.	.
(14) Коэффициент заполне- ния импульсов, проц.	1	1	.	.	.
(15) Наработка на отказ, ч	300	800	600	1500	3000
(16) Потребляемая мощность:					
по переменному току, В·А	80
по постоянному току, Вт	75	80	65	70	50
(17) Вес, кг	8,75	6,4	7,7	6	12,3
(18) Объем, дм ³	8,1	3,5	7,8	5,6	14
(19)					
(20)					

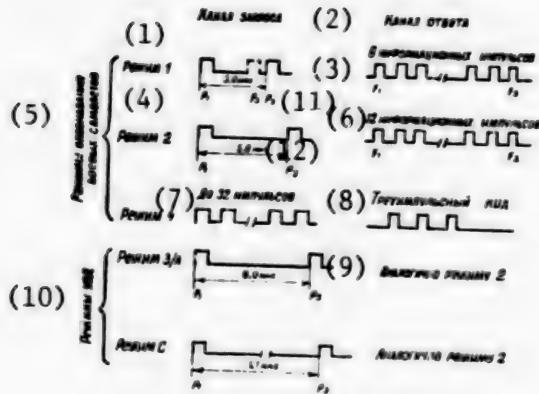
Figure 2. Main Technical and Tactical Features of Aircraft Radar Responders

Key:

1. Characteristics	11. Rated sensitivity of receiving device (decibels at the 1-milli-watt level)
2. AN/APX-72 (USA)	12. Dynamic range (decibels)
3. AN/APX-77A (USA)	13. Discrimination
4. AN/APX-101 (USA)	14. Pulse loading factor (percentage)
5. EMD-3400 (France)	15. Time between failures (hours)
6. STR-700 (FRG)	16. Power used:
7. Interrogation signal reception frequency (megacycles)	17. Alternating current (volt-amperes)
8. Response signal measurement frequency (megacycles)	18. Direct current (watts)
9. Maximum operating altitude (kilometers)	19. Weight (kilograms)
10. Output power (kilowatts)	20. Size (cubic decimeters)

belongs to one's own armed forces or whether it is an enemy object imitating the response signals.

One of the functional features of the Mk12 radar identification system, according to foreign press reports, is the fact that it is impossible to activate the responder with interrogation signals emitted against the side lobes of the interrogator's antenna radiation pattern. This is achieved by suppressing the side lobes and having within the interrogation signal a special pulse P_2 , which is emitted by means of a nondirectional antenna 2 mks following pulse P_1 . The response signal is thus transmitted only when the level of pulses P_1 and P_3 exceed that of pulse P_2 by at least 9 decibels.



Structure of Interrogation and Response Signals for the Mk12 Radar Identification System Operating in Various Modes

Key:

1. Interrogation channel	6. 12 information pulses
2. Response channel	7. Up to 32 pulses
3. In information pulses	8. Three-pulse code
4. Mode	9. Identical to mode 2
5. Combat aircraft identification modes	10. Flight control modes
	11. R[mode]
	12. mks

When the responder is within range of a large number of ground-based interrogators, a considerable number of signals enter its receiver, which can result in an overload. In order to prevent this the responders have automatic load reduction circuits, which fix the maximum number of response signals (no more than 1,200 per second). If this level is exceeded the sensitivity of the receiving device is automatically reduced, and signals from the more remote interrogators are not received for processing. In addition, in order to prevent a break in the response signals when several interrogators are coming in, the receiving device in the responder is "blocked" for the amount of time necessary to emit the response signal (up to 125 mks).

The Western experts believe that the Mk12 radar identification system also has shortcomings, however. These include mutual interference when a large number of interrogators is operating; the fact that the enemy can track aircraft and ships, using interrogation and then fixing the direction of the responders; disruptions in the reception of interrogation signals due to the shielding effect of elements of the aircraft when it is maneuvering; the fact that it is relatively simple for the enemy to create deliberate interference with radioelectronic warfare equipment, since two widely known, fixed frequencies are used.

The foreign experts note that the problem of combatting mutual interference resulting from a lack of synchronization in the European theater of war, which has a large number of airborne and land-based interrogators, is especially acute. The former are installed on fighters for identifying air targets detected by means of airborne radar prior to employing air-to-air guided missiles, and on

long-range radar detection and control aircraft (it is assumed that these will almost continuously interrogate aircraft responders located hundreds of kilometers away). All antiaircraft missile systems, including portable ones, are outfitted with the second type.

(1) Характеристики	AN/TPX-46(V) (2) (США)	AN/TPX-54(V) (3) (США)	MSR-400 (4) (США)	1990/D11A (5) (ФРГ)	J/UPX-110 (6) (Япония)
(7) Дальность действия, км	370	370	20	.	.
(8) Частота излучения запросных сигналов, МГц	1030	1030	1030	1030	1030
(9) Частота приема ответных сигналов, МГц	1090	1090	1090	1090	1090
(10) Выходная мощность, кВт	2 или 1 1,5 или 0,125	1,5 или 0,125	0,4	1500—500	3000
(11) Коэффициент заполнения, проц.	1	1	1	.	.
(12) Чувствительность системы декодирования, дБм	—80	—80	—68	—80	—90
(13) Наработка на отказ, ч	800	2000	.	540	.
(14) Потребляемая мощность, Вт	1380	250	75	500	2000
(15) Вес, кг	104,5	25,4	207	207	.
(16) Объем, дм ³	124	48	47	510	95

Figure 3. Main Technical and Tactical Features of Ground-Based Radar Interrogators

Key:

1. Characteristics	9. Response signal reception frequency (megacycles)
2. AN/TPX-46(V) (USA)	10. Output power (kilowatts)
3. AN/TPX-54(V) (USA)	11. Loading factor (percentage)
4. MSR-400 (USA)	12. Sensitivity of decoding system (decibels at the 1-milliwatt level)
5. 1990/D11A (FRG)	13. Time between failures (hours)
6. J/UPX-110 (Japan)	14. Power used (watts)
7. Effective range (kilometers)	15. Weight (kilograms)
8. Interrogation signal emission frequency (megacycles)	16. Size (cubic decimeters)

The foreign experts consider it to be practically impossible to prevent or eliminate the possibility of taking bearings on aircraft with specially elicited response signals. This is due to the principles incorporated in the design of the responder--specifically, a response is issued to any correct challenge. And although it is not always possible to isolate the "friend or foe" sign from the response signals for purposes of subsequently imitating it, it is fully possible at the present time to take bearings on aircraft from such signals for purposes of tracking them or employing guided missiles against them.

The responder antenna systems installed on planes and helicopters are extremely important for assuring the effective functioning of the radar identification equipment, since the screening effect from aircraft elements can significantly

affect the reception of interrogation signals coming from certain directions. At the present time two antennas are ordinarily used to eliminate this phenomenon. One of them is installed on the upper part of the fuselage, the other on the lower part. This technical solution makes it possible to receive interrogation signals with the aircraft or helicopter in almost any angular position relative to the interrogator. The foreign experts claim that it is still extremely difficult to create a spherical antenna radiation pattern for a responder, however. Because of this there can be certain omissions of both interrogation and response signals, which makes aircraft less safe against erroneous destruction by their own active weapons, especially when quick-reacting weapons systems are used.

According to reports in the foreign press the Mk12 identification system is presently being improved in the USA. It is assumed that the modernized version will function on the principle of systematic emission of a series of interrogation signals, to which the proper response signals must be issued, and the emission of each interrogation signal will depend upon the response received in the preceding identification cycle. In the future it is planned to create in the Mk12 new identification lines and to employ other wave bands and modern principles for designing the equipment.

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FOREIGN MILITARY AFFAIRS

U.S. NAVAL OPERATIONS, COMBAT TRAINING

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 59-64

[Article by Capt 1st Rank F. Gavrilov: "The Operations and Combat Training of the U.S. Naval Forces"]

[Text] Governing circles in the USA regard the Navy as an extremely important component of the nation's armed forces and assign it far from the least significant role in the implementation of their aggressive plans. The Navy is considered to be the most universal and mobile force, one with great striking power, capable of performing a broad range of missions in wars of various types and scales. Therefore, the press underscores, the Pentagon shows special concern for maintaining the fleet in a constant state of readiness to engage in combat operations and for improving the training of its personnel.

The operations and combat training of the Navy is conducted in accordance with the requirements of the new "direct confrontation" strategy adopted by Washington, which includes the possibility of conducting both a universal or "limited" nuclear and a long conventional war. Furthermore, it does not rule out the likelihood of a local conflict using conventional weapons, with its subsequent "geographic (horizontal) escalation to other theaters of military operations, "where the enemy is most vulnerable," or the conduct of a long war on several strategic axes simultaneously. Pentagon representatives maintain that such a war could embrace continental and sea (ocean) theaters of military operations.

In accordance with the views held in the United States on the Navy's role in a war, the missions assigned to it can be conditionally placed into two main groups: fleet against land and fleet against fleet. The former includes nuclear missile attacks against targets in enemy territory, the provision of air and naval fire support for ground forces operating on coastal axes, the performance of naval landing operations, and the transporting of troops, weapons and material and technical supplies. The latter includes the gaining of naval and air supremacy (the destruction of naval forces at sea and at their bases), the protection of ocean lines of communication and defense of the continental USA from the sea.

The above operations are practiced in the Navy's operations and combat training, and the Navy's operations against another navy are only employed for creating the conditions necessary for the accomplishment of the first group of missions.

Specifically, the gaining of supremacy at sea and the protection of ocean lines of communication are the main conditions for assuring the combat stability of strategic nuclear-missile submarine systems and the transportation of strategic reserves to overseas theaters of military operations.

The Western press notes that the geographic location of the United States has necessitated the active development (along with the strategic and general-purpose forces) of means of assuring strategic mobility, as well as a system for mobilizing the merchant fleet for transporting troops and military cargo to overseas theaters of military operations, primarily to Western Europe. The USA's aggressive wars in Korea and Vietnam have demonstrated the fact that an enormous quantity of military cargo will be necessary for conducting lengthy military operations with the ground forces in a remote theater of military operations. A total of 1.2-2 million tons of cargo was delivered to South Vietnam each month, for example, and naval transport accounted for as much as 98 percent of the cargo hauled and around 35 percent of the personnel transported there.

According to articles in the American press, the same situation would exist in case of a prolonged war in Europe, despite basic differences between the conditions for conducting combat operations there and those under which the Vietnam operations were conducted. The newspaper NEW YORK TIMES has stated: "Since the Pentagon stresses the need for long-range planning in case of a drawn-out conventional war in Europe, increasing stress is being placed upon the capability for replenishing supplies and delivering ammunition and equipment by sea to the forces in Europe. Aircraft will have to be used for transporting reinforcements in the first phase, of course, but for prolonged combat operations the main responsibility will fall to naval transport."

The annual operations training of the Navy, during which the above missions are practiced, is characterized by increased scope, scales and coordination of the exercises, the moving of the exercise areas near to the bases and places of deployment of the Soviet navy and increasing employment of a bloc policy.

Pursuing its adventuristic goal of achieving undisputed supremacy over the Soviet navy, the American Navy command is attempting to master operations training missions which will make it possible at the very beginning of a war to blockade Soviet naval forces in coastal areas and around their bases, preventing them from spreading out into the open ocean and thereby providing security for transporting strategic reserves to overseas theaters of military operations.

In the exercises all of these things are accomplished with the comprehensive employment of submarines and surface ships, deck-based and coastal patrol aircraft and the Marines. As many as 100 national exercises and exercises performed jointly with allies are conducted annually under plans of the U.S. Navy command. Aircraft carriers participate in almost a third of them; amphibious forces and the Marines take part in the same number; and ASW and mine-sweeping forces, as well as strategic mobility support equipment, are employed in the rest of them. It is also noted that operations and combat training missions are ordinarily not practiced by a single branch of naval forces alone.

The operations training of the American Navy involves a group of periodically repeated standard exercises with consistently performed missions, specific periods of time, make-up of participants and exercise areas. The largest of these are the "Team Work," "Ocean Venture," "Ocean Safari," "Northern Wedding," "Display Determination," "Team Spirit," "Rimpac," "Unitas" and others.

NATO's Joint Armed Forces conduct their "Team Work" exercise in the North and Eastern Atlantic, the Norwegian and North Seas, in Great Britain and Norway, once every 4 years (the next such exercise will be conducted in 1984). They are a component of the "Autumn Forge" concluding fall maneuvers. Up to 60,000 men, more than 270 fighting ships and auxiliary vessels, as well as more than 450 planes and helicopters from NATO's naval, ground and air forces, ordinarily take part in them. During the exercises the troops practice gaining supremacy at sea, organizing all types of defense for task forces, protecting naval lines of communication, supporting the transportation of strategic reserves and military cargo to Europe, conducting naval landing operations and providing air support for ground forces operating on coastal axes.

According to the foreign press the exercises are conducted in two phases. They are preceded by a reinforcement of NATO's Joint Armed Forces in the Eastern Atlantic with an aircraft-carrier group and a large landing formation of American naval forces brought there from the East Coast of the USA (Figure 1 [figures not reproduced]).

During the first phase a NATO assault fleet is formed in the Atlantic; anti-submarine warfare is conducted in the Norwegian Sea and on the Iceland-Faroe Islands ASW line; mine-laying exercises are performed, including mine-laying involving the U.S. Air Force's B-52 strategic bombers; a landing force crosses to the area of a naval landing operation under the cover of an aircraft-carrier group operating against "enemy" submarines, surface ships and aircraft.

In the second phase the forces practice retaining supremacy in the Norwegian Sea, organizing naval landing operations, interaction between the Marines and ground forces, protecting communications in the Eastern Atlantic, escorting convoys and providing support for ground forces and the landing operation.

Similar missions are also practiced in the "Ocean Venture," "Ocean Safari" and "Northern Wedding" exercises by NATO's Joint Armed Forces and Joint Naval Forces. In the "Ocean Venture" exercise, for example, the main attention is devoted to the capability of the NATO nations' naval forces, primarily those of the USA, for providing effective protection for ocean lines of communication in the Atlantic, where, the foreign press notes, the "military strategists are forced to correlate the needs of the assault forces conducting offensive operations in Europe with the vitally important need to keep open the naval lines linking Europe and the USA."

The "Ocean Venture" exercise conducted in 1981 was conditionally broken down into three phases: Caribbean, North Atlantic and Central Atlantic.

In the first phase the main attention was devoted to the gaining of supremacy on the East Coast of the USA and in the Caribbean Sea, to the preparation and

conduct of a combined landing operation to capture a base used by "enemy" submarines. The landing operation was planned for Vieques Island near Puerto Rico, but the foreign press stressed the fact that Cuba was one of the most likely countries against which such an invasion operation might actually be carried out.

Two aircraft-carrier groups were moved to the Eastern Atlantic and NATO's assault fleet was formed in the second phase. Missions involved in gaining supremacy in the Norwegian Sea and the North Atlantic and the provision of direct air support for the bloc's ground forces were practiced in the separate "Magic Forge" and "Ocean Safari" exercises conducted by NATO's Joint Naval Forces.

The main element in the Central Atlantic phase was the movement of a landing force across the Atlantic Ocean to reinforce the grouping of NATO's Joint Armed Forces in Europe. It was conducted in a situation of active operations by "enemy" surface ships, submarines and aircraft attempting to disrupt the movement of troops along ocean and coastal routes.

The "Northern Wedding" exercise area embraces the Eastern Atlantic, the Norwegian and North Seas, areas of the British Channel and the Baltic straits. It mainly involves combatting enemy surface ships and submarines to gain supremacy at sea and air superiority, conducting naval landing operations, protecting ocean and sea lines of communication, providing direct support for ground forces, moving convoys from the East Coast of the USA and from Great Britain to Europe, and organizing all types of defense for task forces, naval landing groups and convoys. In 1982 this exercise was conducted in September. As many as 25,000 men, around 160 ships, boats and auxiliary vessels (including the American aircraft-carrier America with escort vessels, the helicopter-carriers Guadalcanal and Inchon, and the general purpose landing ships Saipan and Nassau), and more than 250 planes and helicopters of the bloc nations' naval forces, took part in it.

The American Navy is also involved in the "Unitas" exercise conducted jointly with the naval forces of a number of Latin American nations annually since 1969. Only Chile and Columbia took part in this exercise, in addition to the USA, in 1982, since the other Latin American states refused to participate as a demonstration of protest against the support given Great Britain by the United States in its conflict with Argentina over the Falkland Islands (Malvinas). The foreign press underscores the fact that the exercise "Unitas-23" conducted last year despite the fact that most Latin American nations boycotted it, demonstrates Washington's desire to prevent any weakening of its military-political influence in the Organization of American States at any cost.

The U.S. military leadership devotes special attention to the operations and combat training of the 6th Fleet, which it considers to be the most universal, flexible and combat-ready operational fleet of American naval forces in Europe.

The fleet's operations and combat training is conducted in accordance with plans for its employment in various types of wars and is aimed at enhancing the combat readiness primarily of the formations of aircraft-carriers, as well as ASW forces and the Marines.

In numerous exercises such as "Display Determination," "Dawn Patrol," "Open (Locked) Gate" and others the forces practice striking at targets in enemy territory with nuclear and conventional weapons, gaining and retaining supremacy at sea and air superiority, providing support for the ground forces, conducting naval landing operations and protecting naval lines of communication.

The Pentagon assigns the Pacific Ocean a special place in its aggressive plans, especially the Western Pacific, the Far East and Southeast Asia. The Pacific Fleet is considered to be the agent of policy and the main striking force of American imperialism in this region. Its operations and combat training consists mainly in enhancing the combat capabilities of the fleet's personnel and equipment and maintaining them in a constant state of readiness for war. The foreign military experts stress the fact that its degree of readiness for war is tested in exercises, the largest of which are the exercises "Team Spirit" (annual) and "Rimpac" (every 2 years).

The exercise "Team Spirit" conducted by the U.S. armed forces in South Korea is designed to demonstrate the readiness and the capability of the United States to provide rapid military assistance to the South Korean regime and to practice joint combat operations. Up to 190,000 men, approximately 40 ships and auxiliary vessels and almost 800 planes and helicopters are ordinarily involved in it. The plans call for setting a naval landing group ashore on the coast of South Korea and providing it with air support with deck-based aircraft. Simultaneously, the laying of mine obstacles and antisubmarine warfare are practiced in the Sea of Japan and its strait areas. The gaining of supremacy at sea and in the air in the given region with the participation of tactical and coastal patrol aircraft is considered to be a necessary precondition for a successful naval landing operation. In recent years the USA has stepped up its efforts to draw Japan into these exercises, officially acknowledging the possibility of joint combat operations by Japanese and South Korean armed forces and consequently, the formation of a tripartite aggressive military alliance under U.S. aegis.

The "Rimpac" exercise is conducted by the U.S. Navy together with the navies of ANZUS and Canada in the Central Pacific. Around 20,000 men, up to 50 ships and almost 200 aircraft take part in it. During the exercise the forces practice reinforcing the naval grouping in this region, interaction among naval groups and combatting submarines on ocean lines of communication, together with deck-based and coastal patrol aircraft.

The Japanese navy also took part in the "Rimpac" exercises in 1982. In the opinion of Western observers, this is further involving it in preparations for conducting combat operations in the Pacific Ocean under the Pentagon's leadership.

According to reports in the foreign press, the practical steps taken by Japanese government circles to militarize the nation have brought praise from that side of the ocean. U.S. Navy Secretary D. Lehman, speaking at the Foreign Correspondents Club and directing the attention of those present to the "Soviet threat," stated that the "initiatives demonstrated by the Japanese self-defense forces

with respect to weapons, exercises and military training are proper initiatives and completely sensible, and Japan's contribution to our joint defense is based on the national policy of assuring the security of naval lines of communication up to 1,000 miles from our shores."

The "Asvex" exercise conducted in the Sea of Japan in 1982 was a joint exercise by the U.S. and Japanese navies. Anti-submarine warfare and the blockading of straits were practiced in the exercise.

Landing training is considered to be one of the most important components of the operations and combat training of the U.S. Navy. Its purpose is to maintain the Navy's amphibious forces and the Marines at a high level of combat readiness for naval landing operations, for being transferred to overseas theaters of operations and for operations as part of advanced groupings.

An important place is assigned to landing training in numerous exercises. The largest of these are used for testing plans and working out the operations performed by landing forces to reinforce groupings of armed forces in strait areas (the exercise "Northern Wedding") and groupings in the region, as well as joint actions between the landing forces and other branches of the armed forces ("Ocean Venture"). Naval landing operations are conducted on coastal axes to provide support for the ground forces (Figure 2).

Analyzing all of these landing operations, the foreign military experts stress the fact that three amphibious landing groups of the U.S. Navy were introduced into the Baltic strait zone for the first time in the exercise "Northern Wedding-82" and that the American Marines operated not only on the western coast of the Jutland Peninsula, as they had done in the past, but also in direct proximity to the GDR's border--on islands in the straits.

The Marines are also actively involved in operations organized by the command of the Rapid Deployment Force. In 1982, for example, an amphibious group, an expeditionary battalion and subunits of the Marines' 7th Expeditionary Brigade assigned to that force took part in joint exercises with the armed forces of Egypt, Oman, Somali ("Jade Tiger") and Australia ("Freedom Pennant"). These exercises involved elements of naval landing operations, the transferring of individual subunits of the 7th Expeditionary Brigade by U.S. military transports to the area of operational designation and the receiving of equipment delivered to that area by depot-ships from the forward base on Diego Garcia.

Regarding the U.S. Navy's participation in numerous exercises, the NATO military experts stress the fact that the Reagan Administration's adoption of the "direct confrontation" strategy has given them a number of special features. Among other things, the missions involved in the operations training of task forces and expeditionary formations of the Marines (conducting naval landing operations, providing support for subunits landed on shore, the laying of mine obstacles for blockading areas in which enemy naval forces are based and straits, creating vast air defense zones and combatting groupings of surface ships) are worked out in close coordination with tactical and strategic aircraft of the U.S. Air Force. B-52 strategic bombers (capable of striking ships with Harpoon anti-ship missiles and in the near future, with Tomahawk cruise missiles, and of mining large

shallow areas), tactical fighters (a distance of up to 400 kilometers from the coast) and E-3A long-range radar detection and control aircraft, the use of which makes the interception of air targets by deck-based fighters considerably more effective, for example, are involved in them.

Pentagon representatives point out that close cooperation between naval and air forces for combatting a naval enemy is officially defined in a memorandum on joint operations signed by the chiefs of staff of the U.S. Navy and Air Force in November of 1982.

The foreign press indicates that the exercises could not but be affected by the employment of the principle of flexible use of aircraft-carriers begun by the command of the American Navy, which consists in beefing up the forward groupings of naval forces with additional aircraft-carrier groups at a high level of combat readiness. It is anticipated that this will further improve the capability for rapidly deploying aircraft-carrier forces in those areas in which this is required by the situation, and enhance the effectiveness of the combat preparation of the aircraft-carriers, the number of which may increase to three in the exercises.

This principle is a clearly defined demonstration of strength. It was most brilliantly manifested in September-October of 1982 and in April of 1983 in the north-western part of the Pacific Ocean. An aircraft-carrier task force consisting of two groups (in 1982) and three groups (1983) appeared in the immediate vicinity of Kamchatka for the first time since World War II. It practiced gaining supremacy in a limited area and subsequently performed similar missions in the Sea of Japan.

This brief summary of information from the foreign press on the operations and combat training of the U.S. Navy, its objectives and scope demonstrate the fact that the Reagan Administration is continuing to build up the fighting strength of the Navy and actively using it to increase tensions in various areas of the World Ocean. The large exercises conducted by operational naval forces are ordinarily of a provocative nature and could easily develop into large-scale aggression. All of this makes it necessary for the Soviet fightingmen to vigilantly guard the borders of our homeland and constantly improve their combat readiness.

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FOREIGN MILITARY AFFAIRS

BRITISH 'BROADSWORD' CLASS FRIGATES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 83 pp 72-73

[Article by Capt 1st Rank (Retired) N. Petrov: "The 'Broadsword' Class of Guided Missile Frigates"]

[Text] Great Britain's military-political leaders are continuing to build up the British navy, which they consider to be one of the means of implementing their aggressive course. The recent Anglo-Argentine conflict over the Falkland Islands (Malvinas) is an example of this. Broadsword class guided missile frigates took part in the conflict, along with various classes of ships (see colored insert [insert not reproduced]).

The foreign press notes that the construction of these ships constitutes a specific stage in the evolution of the views held by Great Britain's naval leaders on the future development of this class of ships. They are to replace the Linder class frigates, whose service life will begin to run out in the last half of this decade. Due to the increase in the cost of building the ships from 68.6 million pounds sterling to 125 million the navy command has been forced to limit the series to nine frigates. The new Broadsword guided missile frigate (the prototype) was delivered to the navy in May of 1979. There are now four ships of this series in service. This is Great Britain's first ship armed with various kinds of missile systems and without general-caliber artillery. A decision was simultaneously made to develop and build a new ship (Design 23), which is less complex and less expensive.

Guided missile frigates of the Broadsword class are designated primarily for combatting submarines. Their weapons also permit them to destroy surface ships, however, and to support air defense formations and effectively protect themselves against air weapons. In addition, they can be used as helicopter control ships.

The building of the frigate was preceded by a large increase in scientific research and experimental design work, including the modeling of many of the ship's areas which house the weapons; a search for more convenient methods of performing installation and dismantling work for repairing the equipment, checking its suitability for repair and its reliability; and the provision of access to the equipment during its operation. The more important areas of the ship--the power compartments, the conning tower, the gas-turbine power plant, the

air-intake and gas-outlet devices and other items (around 30 in all), for example--were built of normal size. A control service created at the Yarrow Ship-Building Yard constantly monitors the entire process of the ship's construction. A set of trainers and simulators of the ship's power systems was set up at a special training center for training the crews to operate them and perform damage-control operations.

The new frigate is very similar to the Sheffield class guided missile destroyer with respect to architecture and hull design. It has a flat deck and considerable waterplane coefficients, even for the bow. A large part of the hull has a double bottom, where fuel and oil tanks are located. There are no portholes in the hull or the superstructure. The design uses practically no aluminum alloys. The ramiform superstructure occupies about 70 percent of the ship's length. A helicopter hanger is built into the bow, with a landing area adjoining it. Two tower-like masts rise above the superstructure, with a smokestack between them. Exocet anti-ship missile launchers are installed on the ship's bow for protection, and there is a bulwark around 18 meters long for protection against waves and spray. The frigate is equipped with an active stabilizing system with fin stabilizers, as well as equipment for cleaning the drain and sewage systems. All of the areas are equipped with air conditioning.

The ship's traveling and maneuvering control and the power plant are automated, which has made it possible to reduce the number of servicing personnel.

Beginning with the fifth in the series, the hull of these ships has been extended by 12.4 meters to 143.6 meters to improve the distribution and the employment of the weapons.

The frigate is equipped with a combination main power plant (GEU), which includes two TM3B Olympus gas-turbines for full speed and two RMLA Tyne turbines for cruising. Each of them runs two five-blade, adjustable-pitch (VRSh) screw propellers by means of a two-stage reduction gear with bifurcated power and a clutch. Maximum short-term capacity for the TM3B turbine is 28,000 hp; maximum long-term power, 21,800 hp. It is delivered to the ship in the form of a single module consisting of a gas generator, its air-intake and a sound-proofing case, the power turbine with housing and an exhaust pipe. The RMLA turbine has a power of 4,250 hp. The primary reduction gear is installed in the front part of the module for preliminary reduction of the rotation rate. Each module of the gas-turbine unit is mounted on cushioned supports to increase its resistance to shocks and blasts.

The automated control system for the main power plant controls the gas turbines, the coupling and uncoupling devices and the controllable-pitch propeller. The entire power unit is housed in four compartments. Two diesel-generators with a capacity of 1,000 kilowatts each are carried in the bow and stern auxiliary machinery compartments. The general ship's system uses alternating, 3-phase, 60 hertz, 400 volt current.

The ship carries two multi-purpose Lynx helicopters (maximum take-off weight, 4,760 kilograms; cruising speed, 232 kilometers per hour; flight range, 600 kilometers), designated for combatting submarines. It is armed with two 324 mm

Mk44 or Mk46 ASW torpedoes, as well as Sea Skua anti-ship missiles with a semi-active guidance system (maximum firing range, 22 kilometers; launching weight, 150 kilograms; warhead weight, 30 kilograms), a small radar set and a sonar unit which is lowered into the water.

Two Mk32 324 mm three-tube torpedo launchers are installed on one of the frigates (the Brilliant) for firing Mk46 ASW torpedoes. The search and the classification of underwater targets and the issuing of target indication information to the ASW fire control systems is performed by two (2016 and 2008) sonar units.

Four single-container launchers for Exocet anti-ship missiles MM=38 (maximum firing range 42 kilometers; flight speed $M=0.93$; launching weight 735 kilograms; warhead weight 165 kilograms) are mounted in front of the superstructure for combatting surface ships. The guidance system is inertial in the middle phase of the trajectory and active, radar in the final phase.

The ship is armed with a Sea Wolf antiaircraft missile system for combatting primarily small, low-flying targets. It has two 6-container launchers located in the bow and the stern parts of the superstructure. The missiles are guided by radio-command. The fire control system includes two radar sets for controlling 910 type weapons produced by the Marconi company and located on the superstructure in front of the foremast and behind the mainmast. The guided missile is 2 meters long; the body diameter is 0.19 meters; the launching weight is 85 kilograms; firing range is 6 kilometers; and its flight speed is $M=2.2$.

In addition to this, there are two Bofors 40 mm artillery pieces for firing at air targets. They can fire 120 rounds per minute to a height of 4,500 meters.

All of the systems for controlling the weapons and the combat equipment are linked to a SAAIS BIUS[combat information and control system], which collects, processes, analyzes and displays information on the tactical situation on indicators at the combat information center.

The ship's electronic equipment also includes 967 and 968 radar units for detecting air and surface targets, a 1006 navigational radar set used for controlling the helicopter flights, a radio direction-finder, a 778 echo-sounder, transceivers operating on various frequencies, shipboard terminal equipment for a satellite communications system, an RTR[expansion unknown] system and a radioelectronic warfare system (with two 8-barrel launchers for 76 mm NUR[free-flight rockets] with anti-radar reflectors and infrared traps).

In combat operations during the Anglo-Argentine conflict over the Falkland Islands (Malvinas) these ships performed missions of combatting low-flying air targets, using Sea Wolf antiaircraft missile systems.

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